Test Report Of ANSI/IES LM-80-21

Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources

Report Number........	:	N01A25020554L00101
Client.....................	:	Seoul Semiconductor Co., LTD
Address..................	:	97-11, Sandan-ro 163, Danwon-gu, Ansan, Gyeonggi-do, Korea 15429
Test Model................	:	STW8A2PD-T1-X
Brand Name.............	:	N/A
Testing Laboratory...	:	Guangdong GTG Testing Technology Co., Ltd.
Address..................	:	1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road,Songshan Lake Hi-tech Industrial Development Zone,Dongguan City,Guangdong Pr., China.
Testing Location.......	:	As above
Date of receipt..........	:	2021-01-26
Date of test	:	2021-01-27 to 2023-03-30
Date of report...........	:	2025-02-20

Tested by:	**Checked by:**	**Approved by:**
Jarvis Zhang/ Test Engineer	Sandy Chen/ Project Engineer	Jessie Li/ Technical Manager

Note 1: The test data was only valid for the test sample(s).This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Guangdong GTG Testing Technology Co., Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP,NIST, or any agency of the Federal Government.
Note 2: This report does not imply product certification, approval, or endorsement by NVLAP, NIST,or any agency of the Federal Government.

ENERGY STAR® LM-80 Cover Sheet

Administrative Information

Tested subcomponent series:	N/A
Tested subcomponent model number:	STW8A2PD-T1-X

DUT Identification

DUT manufacture's name:	Seoul Semiconductor Co., LTD
DUT identification,e.g., model number:	STW8A2PD-T1-X
Description of DUT,including if the DUT is an LED package or module:	LED Package

DUT Characteristics

Total input power(W):	0.5 W
Average current density per LED die(mA/mm^2):	258.3 mA/mm^2
Average power density per LED die(W/mm^2):	0.8 W/mm^2
Representative CRI(Ra) of the tested sample set: (Indicate whether the reported value is the mean or Median value of the sample set,or per unit)	80
Minimum die edge to die edge spacing:	0.5mm

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1. General Information

1.1 Description of LED Light Sources

Sample Size:

75Pcs samples were received on 2021-01-26, the samples were numbered from S1 to S25 and S26 to S50 and S51 to S75.

Manufacture:	Seoul Semiconductor Co., LTD
Part Number:	STW8A2PD-T1-X
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	2700K
Power:	0.5W
CRI:	80

Note: Full test data were based on original report number N02A23030529L00401. This report only updates standard version, testing laboratory, client, manufacture and model 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)

This report covers the following models:

Test Model	Multiple Models	Variations

STW8A2PD-T1-X	STW8AxxD-Tx-X	In the model designation:
		x1 x2= internal code;
		x3= LM rank;
		X4=customer code

Disclaimer:

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

1.2 Standards Used

- ANSI/IES LM-80-21: Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources
- IES TM-21-11: Projecting Long Term Lumen Maintenance of LED Light Sources(This standard was not accredited by NVLAP)

ENERGY STAR® Requirements for the use of LM-80 Data(This standard was not accredited by NVLAP)

1.3 Test equipment list

Test Equipment	Serial No	Model No	Calibration due date
Integrating Sphere System	01-L-187	0.5m	2025/03/13
Standard Light Source	01-L-188	D062	2025/03/13
High Accuracy Array Spectroradio Meter	01-L-169	HAAS-3000	2025/03/13
Digital Power Meter	01-L-166	PF310	2025/03/13
Precision digital stabilized DC power supply	01-L-167	WY305	2025/03/13
Temperature Tester	01-L-192	UIS-D8036	2025/02/22

Statement of Traceability: Guangdong GTG Testing Technology Co., Ltd.attested that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit(SI).

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 minimalambient airflow.The case temperature and ambient temperature was monitoredby 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

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate u'v'.2π measurement was used and sample was drived by DC power supply. The forward current was regulated to within ±0.5% of the nominal value.The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to 25°C ± 2°C, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe. The uncertainty of the light output(luminous flux) measurements is U=2.1%(K=2),at the 95% confidence level.The uncertainty of the correlated color temperature measurements is U=18K(K=2),at the 95% confidence level.The uncertainty of the the temperature is U=0.5°C(K=2),at the 95% confidence level.

1.7 Sample Set

Data Set 1:85°C,150mA	
Part number：	STW8A2PD-T1-X
Number of Units:	25
Case Temperature(T_S):	＞83°C
Ambient Temperature(T_A):	＞80°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

Data Set 2:105°C,150mA	
Part number：	STW8A2PD-T1-X
Number of Units:	25
Case Temperature(T_S):	＞103°C
Ambient Temperature(T_A):	＞100°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

Data Set 3:115°C,150mA	
Part number：	STW8A2PD-T1-X
Number of Units:	25
Case Temperature(T_S):	＞113°C
Ambient Temperature(T_A):	＞110°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

2. Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	TM-21 Projection L_{70} Lifetime	TM-21 Projection L_{80} Lifetime	TM-21 Projection L_{90} Lifetime	Reported TM-21 L_{70} Lifetime	Reported TM-21 L_{80} Lifetime	Reported TM-21 L_{90} Lifetime
1	25	0	1000hrs	17000hrs	199000hrs	124000hrs	59000hrs	>102000hrs	>102000hrs	59000hrs
2	25	0	1000hrs	17000hrs	193000hrs	120000hrs	56000hrs	>102000hrs	>102000hrs	56000hrs
3	25	0	1000hrs	17000hrs	188000hrs	116000hrs	53000hrs	>102000hrs	>102000hrs	53000hrs

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	Reported TM-21 Q_{90} Lifetime (400-700nm)	Reported TM-21 Q_{90} Lifetime (700-800nm)
1	25	0	1000hrs	17000hrs	60000hrs	59000hrs
2	25	0	1000hrs	17000hrs	56000hrs	56000hrs
3	25	0	1000hrs	17000hrs	53000hrs	52000hrs

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	100.23%	100.01%	99.78%	99.54%	99.30%	99.05%	98.82%	98.60%	98.38%	98.19%	98.00%	97.81%	97.64%	97.48%	97.31%	97.16%	97.02%
2	100.14%	99.92%	99.62%	99.33%	99.05%	98.76%	98.51%	98.25%	98.03%	97.84%	97.61%	97.40%	97.23%	97.05%	96.91%	96.79%	96.67%
3	100.04%	99.74%	99.41%	99.11%	98.82%	98.48%	98.19%	97.90%	97.62%	97.37%	97.14%	96.97%	96.82%	96.66%	96.50%	96.36%	96.23%

Average Photon Flux Maintenance, Photosynthetic (PFMp) (Percentage of Initial Photosynthetic Photon Flux)

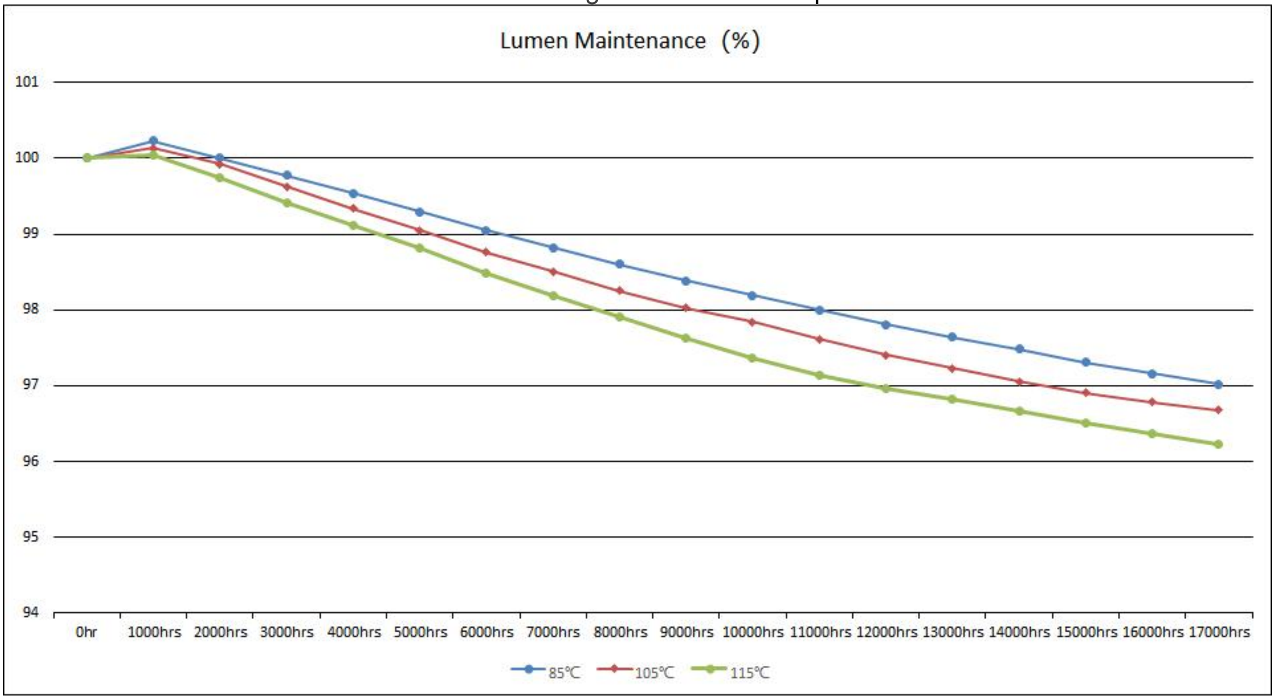
Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	100.25%	100.04%	99.84%	99.58%	99.32%	99.06%	98.83%	98.58%	98.35%	98.15%	97.96%	97.75%	97.60%	97.44%	97.28%	97.16%	97.04%
2	100.17%	99.92%	99.67%	99.37%	99.11%	98.85%	98.57%	98.31%	98.05%	97.83%	97.59%	97.36%	97.20%	97.07%	96.94%	96.80%	96.70%
3	100.10%	99.80%	99.47%	99.14%	98.85%	98.53%	98.23%	97.93%	97.66%	97.41%	97.16%	96.97%	96.83%	96.68%	96.53%	96.41%	96.30%

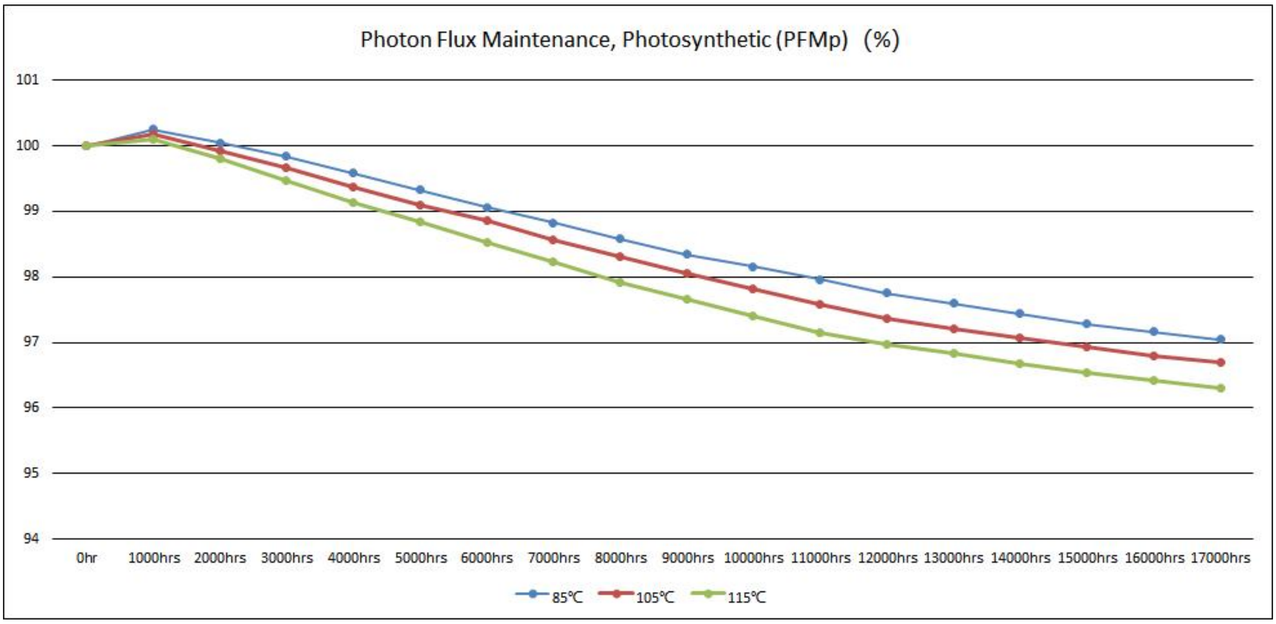
Average Photon Flux Maintenance,Far-Red (PFM_{FR}) (Percentage of Initial Far-Red Photon Flux)

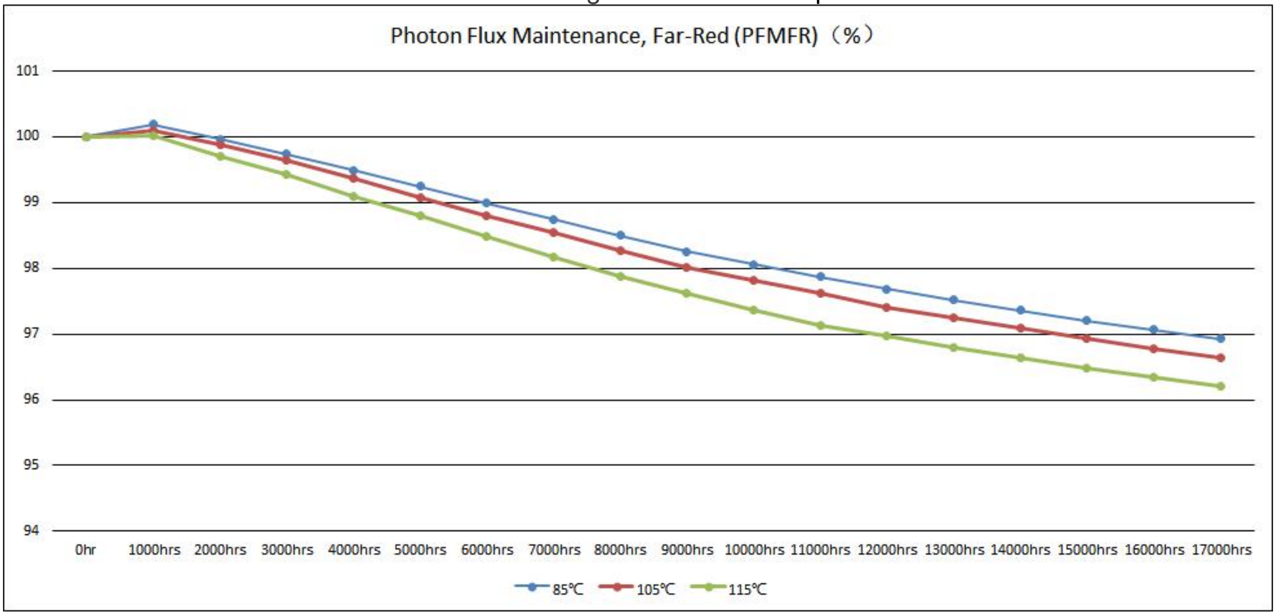
Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	100.19%	99.96%	99.74%	99.49%	99.25%	98.99%	98.75%	98.50%	98.26%	98.06%	97.87%	97.68%	97.52%	97.36%	97.21%	97.07%	96.93%
2	100.11%	99.87%	99.64%	99.36%	99.08%	98.80%	98.54%	98.27%	98.01%	97.81%	97.61%	97.41%	97.25%	97.09%	96.93%	96.78%	96.64%
3	100.01%	99.71%	99.43%	99.10%	98.80%	98.48%	98.18%	97.88%	97.62%	97.37%	97.14%	96.97%	96.80%	96.63%	96.48%	96.34%	96.20%

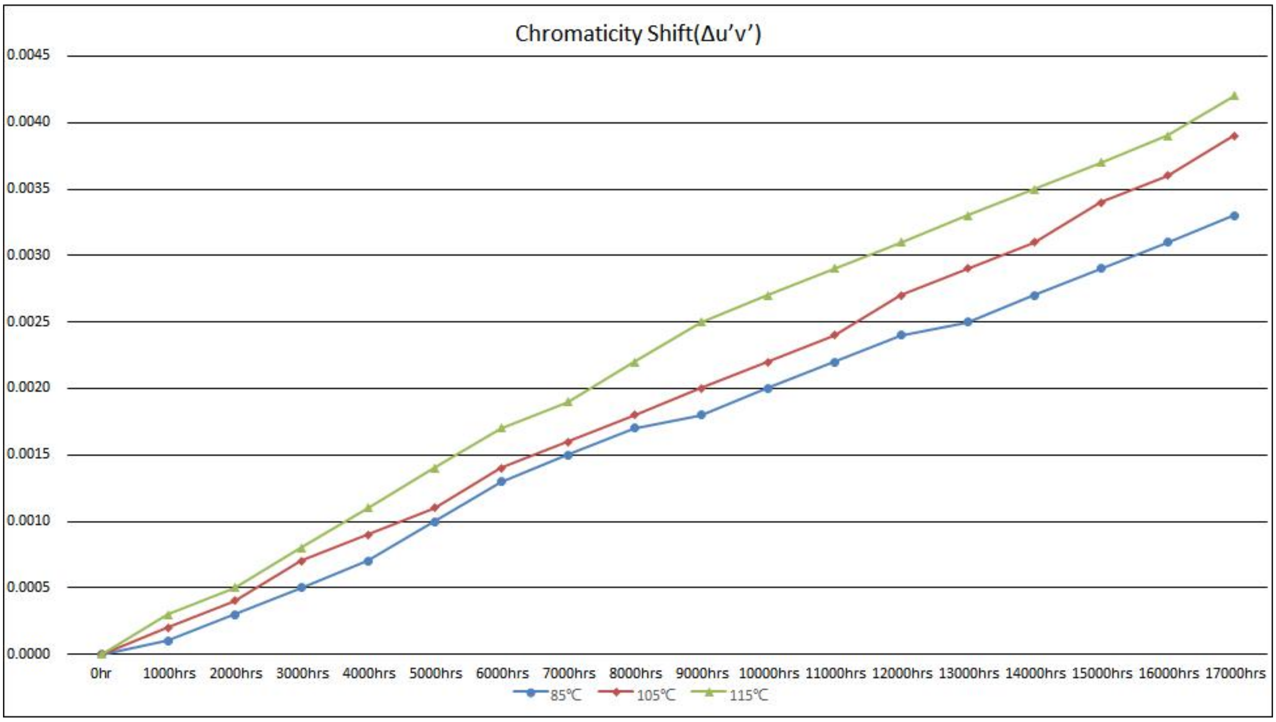
Average Chromaticity Shift ($\Delta u'v'$)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0017	0.0018	0.0020	0.0022	0.0024	0.0025	0.0027	0.0029	0.0031	0.0033
2	0.0002	0.0004	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020	0.0022	0.0024	0.0027	0.0029	0.0031	0.0034	0.0036	0.0039
3	0.0003	0.0005	0.0008	0.0011	0.0014	0.0017	0.0019	0.0022	0.0025	0.0027	0.0029	0.0031	0.0033	0.0035	0.0037	0.0039	0.0042


Lumen Maintenance (%)
101
100
99
98
97
96
95
94
0hr
1000hrs
2000hrs
3000hrs
4000hrs
5000hrs
6000hrs
7000hrs
8000hrs
9000hrs
10000hrs
11000hrs
12000hrs
13000hrs
14000hrs
15000hrs
16000hrs
17000hrs
85℃
105℃
115℃


Photon Flux Maintenance, Photosynthetic (PFMp) (%)
101
100
99
98
97
96
95
94
0hr
1000hrs
2000hrs
3000hrs
4000hrs
5000hrs
6000hrs
7000hrs
8000hrs
9000hrs
10000hrs
11000hrs
12000hrs
13000hrs
14000hrs
15000hrs
16000hrs
17000hrs
85℃
105℃
115℃


Photon Flux Maintenance, Far-Red (PFMFR) (%)
101
100
99
98
97
96
95
94
0hr 1000hrs 2000hrs 3000hrs 4000hrs 5000hrs 6000hrs 7000hrs 8000hrs 9000hrs 10000hrs 11000hrs 12000hrs 13000hrs 14000hrs 15000hrs 16000hrs 17000hrs
85℃ 105℃ 115℃


Chromaticity Shift(Δu'v')
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
0hr 1000hrs 2000hrs 3000hrs 4000hrs 5000hrs 6000hrs 7000hrs 8000hrs 9000hrs 10000hrs 11000hrs 12000hrs 13000hrs 14000hrs 15000hrs 16000hrs 17000hrs
85℃ 105℃ 115℃

3. Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

Sample Number	Φ(lm)	Lumen Maintenance (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S1	77.59	100.24	99.99	99.78	99.56	99.30	99.04	98.83	98.58	98.37	98.17	97.97	97.78	97.60	97.42	97.23	97.08	96.95
S2	77.52	100.19	99.95	99.71	99.49	99.28	99.06	98.85	98.63	98.42	98.23	98.05	97.85	97.72	97.58	97.41	97.25	97.10
S3	77.26	100.21	99.97	99.75	99.49	99.24	99.02	98.77	98.52	98.27	98.08	97.90	97.71	97.57	97.44	97.25	97.09	96.96
S4	77.72	100.22	99.98	99.76	99.55	99.33	99.11	98.90	98.69	98.47	98.28	98.09	97.91	97.73	97.54	97.35	97.19	97.04
S5	77.47	100.21	100.00	99.75	99.54	99.28	99.02	98.81	98.56	98.35	98.17	97.97	97.77	97.57	97.40	97.20	97.05	96.90
S6	77.45	100.26	100.05	99.84	99.58	99.32	99.06	98.81	98.60	98.39	98.19	98.01	97.81	97.62	97.43	97.29	97.14	96.98
S7	77.23	100.24	100.02	99.78	99.57	99.31	99.05	98.84	98.62	98.41	98.22	98.04	97.84	97.70	97.53	97.35	97.22	97.08
S8	77.72	100.24	100.03	99.81	99.60	99.38	99.12	98.91	98.66	98.41	98.21	98.01	97.81	97.63	97.46	97.32	97.17	97.02
S9	77.39	100.21	99.97	99.73	99.47	99.25	98.99	98.78	98.53	98.32	98.13	97.93	97.76	97.58	97.39	97.25	97.12	96.96
S10	77.65	100.24	100.02	99.78	99.52	99.26	99.00	98.75	98.51	98.29	98.09	97.91	97.73	97.60	97.42	97.23	97.08	96.94
S11	76.46	100.22	99.98	99.76	99.51	99.29	99.03	98.82	98.61	98.36	98.18	97.98	97.78	97.61	97.43	97.30	97.16	97.03
S12	76.31	100.25	100.03	99.82	99.56	99.30	99.05	98.83	98.62	98.41	98.21	98.01	97.82	97.64	97.47	97.27	97.12	96.97
S13	76.62	100.28	100.06	99.85	99.63	99.37	99.11	98.90	98.69	98.47	98.28	98.08	97.90	97.76	97.63	97.44	97.28	97.15
S14	76.66	100.19	99.98	99.77	99.55	99.29	99.03	98.82	98.61	98.39	98.20	98.02	97.82	97.64	97.51	97.37	97.22	97.07
S15	77.44	100.19	99.95	99.71	99.49	99.28	99.06	98.85	98.63	98.42	98.24	98.06	97.88	97.75	97.57	97.40	97.24	97.09
S16	77.69	100.26	100.02	99.80	99.58	99.33	99.07	98.82	98.60	98.39	98.21	98.02	97.82	97.63	97.50	97.36	97.21	97.07
S17	77.78	100.27	100.05	99.84	99.58	99.32	99.06	98.82	98.60	98.39	98.21	98.02	97.84	97.66	97.48	97.29	97.16	97.02
S18	77.00	100.19	99.98	99.76	99.51	99.25	99.03	98.78	98.57	98.32	98.14	97.95	97.75	97.56	97.42	97.23	97.08	96.93
S19	77.22	100.20	99.96	99.72	99.50	99.25	98.99	98.77	98.56	98.35	98.15	97.97	97.79	97.60	97.42	97.23	97.08	96.92
S20	77.09	100.27	100.05	99.81	99.55	99.34	99.12	98.87	98.66	98.44	98.24	98.04	97.86	97.73	97.59	97.42	97.28	97.15
S21	76.71	100.24	100.02	99.81	99.55	99.29	99.08	98.83	98.61	98.37	98.17	97.97	97.77	97.64	97.50	97.37	97.21	97.06
S22	76.91	100.21	100.00	99.76	99.50	99.28	99.02	98.77	98.56	98.35	98.15	97.96	97.76	97.62	97.49	97.35	97.20	97.05
S23	76.82	100.24	100.00	99.76	99.50	99.28	99.07	98.85	98.64	98.39	98.20	98.00	97.80	97.63	97.49	97.32	97.16	97.01
S24	76.93	100.25	100.04	99.80	99.54	99.32	99.07	98.85	98.64	98.43	98.23	98.05	97.87	97.68	97.49	97.31	97.16	97.00
S25	77.14	100.24	100.03	99.79	99.53	99.27	99.01	98.80	98.59	98.34	98.16	97.98	97.79	97.61	97.43	97.24	97.11	96.95
Ave.	77.19	100.23	100.01	99.78	99.54	99.30	99.05	98.82	98.60	98.38	98.19	98.00	97.81	97.64	97.48	97.31	97.16	97.02
Med.	77.23	100.24	100.00	99.78	99.54	99.29	99.05	98.82	98.61	98.39	98.20	98.01	97.81	97.63	97.48	97.31	97.16	97.02
St dev	0.4268	0.0261	0.0339	0.0388	0.0395	0.0369	0.0379	0.0416	0.0474	0.0509	0.0504	0.0494	0.0522	0.0589	0.0649	0.0682	0.0679	0.0698
Min.	76.31	100.19	99.95	99.71	99.47	99.24	98.99	98.75	98.51	98.27	98.08	97.90	97.71	97.56	97.39	97.20	97.05	96.90
Max.	77.78	100.28	100.06	99.85	99.63	99.38	99.12	98.91	98.69	98.47	98.28	98.09	97.91	97.76	97.63	97.44	97.28	97.15

3.2 Data Set 1, 85°C, 150mA (Photon Flux Maintenance, Photosynthetic (PFMp))

Sample Number	PPF (umol/s)	Photon Flux Maintenance, Photosynthetic (PFMp) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S1	1.107	100.22	100.01	99.82	99.53	99.25	98.96	98.73	98.47	98.25	98.03	97.82	97.60	97.46	97.32	97.18	97.04	96.91
S2	1.105	100.24	100.03	99.83	99.54	99.31	99.07	98.83	98.60	98.38	98.21	98.01	97.81	97.66	97.52	97.33	97.24	97.10
S3	1.105	100.25	100.04	99.83	99.59	99.31	99.02	98.80	98.55	98.29	98.09	97.89	97.72	97.58	97.39	97.25	97.12	96.98
S4	1.105	100.24	100.03	99.83	99.55	99.26	98.98	98.76	98.50	98.25	98.04	97.88	97.68	97.54	97.39	97.20	97.06	96.93
S5	1.105	100.22	100.01	99.80	99.56	99.28	99.04	98.79	98.55	98.31	98.09	97.93	97.70	97.56	97.37	97.23	97.13	97.00
S6	1.105	100.25	100.04	99.83	99.59	99.36	99.12	98.90	98.64	98.41	98.24	98.08	97.88	97.73	97.59	97.45	97.36	97.22
S7	1.105	100.23	100.02	99.82	99.53	99.25	99.01	98.75	98.50	98.26	98.10	97.89	97.67	97.53	97.39	97.24	97.11	96.98
S8	1.105	100.22	100.02	99.82	99.58	99.33	99.05	98.79	98.56	98.30	98.10	97.89	97.69	97.55	97.41	97.27	97.12	96.98
S9	1.105	100.25	100.05	99.84	99.56	99.32	99.04	98.80	98.55	98.33	98.17	97.94	97.72	97.57	97.38	97.24	97.10	97.01
S10	1.105	100.30	100.09	99.88	99.59	99.35	99.07	98.85	98.59	98.37	98.21	97.99	97.82	97.63	97.49	97.35	97.21	97.07
S11	1.089	100.25	100.05	99.84	99.60	99.37	99.08	98.84	98.59	98.33	98.11	97.95	97.72	97.53	97.39	97.20	97.06	96.96
S12	1.090	100.24	100.03	99.84	99.55	99.32	99.03	98.80	98.56	98.31	98.10	97.88	97.65	97.51	97.32	97.18	97.04	96.94
S13	1.090	100.24	100.04	99.85	99.60	99.37	99.09	98.83	98.59	98.36	98.20	98.03	97.87	97.68	97.54	97.40	97.30	97.21
S14	1.092	100.25	100.06	99.86	99.57	99.34	99.06	98.84	98.62	98.40	98.19	97.99	97.83	97.64	97.49	97.30	97.21	97.08
S15	1.109	100.29	100.08	99.87	99.58	99.35	99.07	98.83	98.57	98.34	98.17	97.95	97.75	97.60	97.46	97.27	97.18	97.05
S16	1.109	100.29	100.10	99.89	99.60	99.36	99.13	98.89	98.63	98.40	98.23	98.03	97.87	97.73	97.58	97.44	97.31	97.22
S17	1.109	100.22	100.01	99.80	99.56	99.27	99.04	98.80	98.55	98.31	98.09	97.88	97.66	97.52	97.38	97.19	97.05	96.92
S18	1.097	100.26	100.05	99.85	99.57	99.28	99.05	98.83	98.59	98.34	98.18	97.95	97.79	97.65	97.46	97.31	97.18	97.09
S19	1.097	100.28	100.07	99.86	99.62	99.33	99.10	98.88	98.66	98.44	98.22	97.99	97.79	97.65	97.51	97.36	97.27	97.18
S20	1.097	100.23	100.02	99.83	99.59	99.35	99.07	98.85	98.63	98.39	98.17	98.00	97.78	97.64	97.45	97.26	97.12	96.99
S21	1.097	100.26	100.07	99.87	99.63	99.39	99.16	98.90	98.65	98.41	98.25	98.09	97.86	97.72	97.58	97.39	97.25	97.16
S22	1.097	100.23	100.02	99.81	99.58	99.33	99.05	98.81	98.56	98.34	98.13	97.91	97.68	97.49	97.30	97.16	97.07	96.94
S23	1.097	100.28	100.08	99.87	99.59	99.30	99.02	98.80	98.56	98.34	98.18	97.98	97.81	97.62	97.48	97.34	97.25	97.11
S24	1.097	100.27	100.06	99.86	99.63	99.39	99.15	98.90	98.66	98.42	98.20	97.99	97.77	97.63	97.49	97.35	97.21	97.08
S25	1.097	100.22	100.01	99.80	99.56	99.28	99.04	98.82	98.60	98.37	98.16	97.96	97.76	97.61	97.42	97.23	97.10	97.01
Ave.	1.101	100.25	100.04	99.84	99.58	99.32	99.06	98.83	98.58	98.35	98.15	97.96	97.75	97.60	97.44	97.28	97.16	97.04
Med.	1.105	100.25	100.04	99.84	99.58	99.33	99.05	98.83	98.59	98.34	98.17	97.95	97.76	97.61	97.45	97.27	97.13	97.01
St dev	0.0063	0.0236	0.0260	0.0250	0.0267	0.0423	0.0467	0.0454	0.0496	0.0530	0.0624	0.0659	0.0773	0.0746	0.0831	0.0843	0.0935	0.0970
Min.	1.089	100.22	100.01	99.80	99.53	99.25	98.96	98.73	98.47	98.25	98.03	97.82	97.60	97.46	97.30	97.16	97.04	96.91
Max.	1.109	100.30	100.10	99.89	99.63	99.39	99.16	98.90	98.66	98.44	98.25	98.09	97.88	97.73	97.59	97.45	97.36	97.22

3.3 Data Set 1, 85°C, 150mA (Photon Flux Maintenance,Far-Red (PFM_{FR}))

Sample Number	PPF (umol/s)	Photon Flux Maintenance,Far-Red (PFM_{FR}) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S1	0.0426	100.24	100.05	99.86	99.62	99.38	99.09	98.83	98.61	98.34	98.16	97.99	97.81	97.68	97.51	97.34	97.19	97.07
S2	0.0425	100.19	100.00	99.80	99.58	99.30	99.02	98.80	98.55	98.30	98.08	97.90	97.73	97.60	97.40	97.27	97.11	96.98
S3	0.0425	100.19	99.93	99.74	99.50	99.28	99.00	98.73	98.51	98.25	98.03	97.85	97.67	97.47	97.31	97.18	97.02	96.91
S4	0.0425	100.20	100.01	99.75	99.51	99.27	99.03	98.78	98.53	98.29	98.11	97.89	97.71	97.58	97.45	97.25	97.14	96.98
S5	0.0425	100.19	99.93	99.68	99.46	99.24	99.02	98.76	98.53	98.31	98.09	97.91	97.73	97.60	97.44	97.24	97.11	96.97
S6	0.0425	100.14	99.89	99.63	99.41	99.17	98.95	98.73	98.48	98.22	98.04	97.82	97.64	97.48	97.31	97.18	97.02	96.87
S7	0.0426	100.22	99.97	99.77	99.49	99.25	98.97	98.72	98.46	98.20	98.02	97.84	97.66	97.53	97.33	97.20	97.07	96.93
S8	0.0425	100.17	99.97	99.72	99.48	99.24	99.00	98.77	98.53	98.30	98.08	97.91	97.73	97.60	97.43	97.26	97.15	97.04
S9	0.0425	100.17	99.98	99.73	99.45	99.23	99.01	98.74	98.48	98.26	98.08	97.86	97.64	97.51	97.35	97.22	97.10	96.95
S10	0.0425	100.15	99.90	99.64	99.42	99.14	98.86	98.61	98.39	98.12	97.91	97.73	97.55	97.38	97.25	97.08	96.97	96.84
S11	0.0419	100.18	99.98	99.73	99.45	99.17	98.92	98.66	98.41	98.19	98.01	97.79	97.61	97.45	97.28	97.15	97.04	96.92
S12	0.0419	100.14	99.95	99.70	99.41	99.20	98.96	98.71	98.44	98.18	97.96	97.78	97.57	97.44	97.31	97.18	97.04	96.89
S13	0.0419	100.25	99.99	99.80	99.58	99.34	99.10	98.83	98.59	98.32	98.11	97.93	97.75	97.58	97.41	97.28	97.13	96.99
S14	0.0420	100.19	99.94	99.68	99.40	99.12	98.84	98.57	98.35	98.13	97.95	97.77	97.59	97.46	97.29	97.12	97.01	96.90
S15	0.0426	100.17	99.91	99.72	99.44	99.20	98.98	98.76	98.51	98.26	98.04	97.86	97.68	97.52	97.39	97.26	97.12	97.01
S16	0.0426	100.19	100.00	99.80	99.58	99.36	99.15	98.88	98.62	98.37	98.19	98.01	97.83	97.64	97.51	97.38	97.24	97.13
S17	0.0426	100.19	100.00	99.80	99.58	99.37	99.08	98.82	98.60	98.35	98.17	97.99	97.81	97.61	97.48	97.29	97.13	96.97
S18	0.0420	100.25	99.99	99.80	99.58	99.30	99.06	98.81	98.56	98.30	98.12	97.90	97.72	97.59	97.40	97.27	97.13	97.00
S19	0.0420	100.16	99.97	99.71	99.49	99.25	98.97	98.74	98.52	98.27	98.09	97.88	97.66	97.49	97.33	97.16	97.00	96.87
S20	0.0420	100.20	99.94	99.75	99.51	99.27	99.03	98.78	98.53	98.27	98.05	97.87	97.66	97.49	97.29	97.09	96.96	96.83
S21	0.0420	100.20	99.94	99.69	99.44	99.23	98.94	98.72	98.46	98.23	98.05	97.84	97.66	97.46	97.33	97.13	96.98	96.86
S22	0.0420	100.13	99.94	99.68	99.40	99.18	98.96	98.74	98.48	98.23	98.01	97.83	97.65	97.45	97.32	97.16	97.00	96.84
S23	0.0420	100.20	100.01	99.75	99.51	99.23	98.99	98.73	98.50	98.25	98.04	97.86	97.64	97.47	97.31	97.14	96.98	96.85
S24	0.0420	100.18	99.93	99.67	99.43	99.19	98.91	98.64	98.42	98.20	97.98	97.80	97.62	97.42	97.22	97.06	96.90	96.77
S25	0.0420	100.25	99.99	99.80	99.52	99.28	99.04	98.79	98.54	98.28	98.10	97.88	97.70	97.51	97.38	97.25	97.09	96.96
Ave.	0.0423	100.19	99.96	99.74	99.49	99.25	98.99	98.75	98.50	98.26	98.06	97.87	97.68	97.52	97.36	97.21	97.07	96.93
Med.	0.0425	100.19	99.97	99.73	99.49	99.24	99.00	98.74	98.51	98.26	98.05	97.86	97.66	97.51	97.33	97.20	97.07	96.93
St dev	0.0003	0.0329	0.0391	0.0582	0.0665	0.0694	0.0723	0.0708	0.0683	0.0645	0.0695	0.0688	0.0725	0.0762	0.0781	0.0802	0.0812	0.0846
Min.	0.0419	100.13	99.89	99.63	99.40	99.12	98.84	98.57	98.35	98.12	97.91	97.73	97.55	97.38	97.22	97.06	96.90	96.77
Max.	0.0426	100.25	100.05	99.86	99.62	99.38	99.15	98.88	98.62	98.37	98.19	98.01	97.83	97.68	97.51	97.38	97.24	97.13

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

Sample Number	Forward Voltage(V)																	
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000hrs
S1	2.905	2.919	2.914	2.912	2.911	2.908	2.915	2.903	2.902	2.900	2.906	2.902	2.898	2.895	2.896	2.891	2.898	2.887
S2	2.895	2.907	2.910	2.910	2.908	2.904	2.896	2.899	2.895	2.891	2.888	2.895	2.890	2.884	2.883	2.883	2.888	2.885
S3	2.909	2.911	2.909	2.903	2.909	2.908	2.899	2.901	2.895	2.896	2.899	2.888	2.888	2.890	2.883	2.890	2.878	2.884
S4	2.899	2.900	2.898	2.902	2.895	2.901	2.902	2.892	2.889	2.889	2.889	2.886	2.888	2.884	2.884	2.882	2.874	2.878
S5	2.896	2.922	2.917	2.917	2.925	2.921	2.910	2.917	2.911	2.906	2.909	2.904	2.898	2.896	2.903	2.900	2.896	2.891
S6	2.901	2.918	2.918	2.910	2.910	2.906	2.907	2.911	2.904	2.903	2.905	2.895	2.897	2.900	2.900	2.889	2.890	2.886
S7	2.913	2.913	2.914	2.909	2.913	2.909	2.902	2.901	2.899	2.895	2.889	2.893	2.893	2.892	2.892	2.884	2.891	2.882
S8	2.893	2.905	2.907	2.904	2.904	2.902	2.896	2.891	2.891	2.896	2.889	2.891	2.891	2.886	2.882	2.883	2.871	2.872
S9	2.900	2.904	2.909	2.912	2.903	2.903	2.901	2.904	2.898	2.897	2.894	2.886	2.895	2.885	2.885	2.885	2.887	2.880
S10	2.864	2.878	2.875	2.872	2.866	2.867	2.861	2.866	2.861	2.859	2.854	2.852	2.856	2.849	2.846	2.844	2.842	2.844
S11	2.904	2.931	2.931	2.925	2.934	2.920	2.923	2.923	2.919	2.922	2.912	2.914	2.907	2.908	2.906	2.909	2.912	2.909
S12	2.936	2.917	2.916	2.910	2.911	2.901	2.910	2.906	2.899	2.895	2.892	2.899	2.898	2.888	2.887	2.884	2.882	2.879
S13	2.937	2.909	2.909	2.908	2.911	2.907	2.906	2.892	2.893	2.893	2.890	2.896	2.897	2.890	2.890	2.887	2.885	2.877
S14	2.932	2.908	2.908	2.905	2.905	2.905	2.895	2.898	2.892	2.892	2.890	2.889	2.889	2.882	2.882	2.882	2.879	2.885
S15	2.952	2.924	2.924	2.921	2.921	2.921	2.913	2.911	2.908	2.903	2.906	2.905	2.899	2.895	2.898	2.901	2.891	2.895
S16	2.940	2.918	2.916	2.916	2.917	2.915	2.908	2.908	2.902	2.897	2.895	2.900	2.892	2.891	2.893	2.885	2.889	2.884
S17	2.932	2.927	2.922	2.926	2.930	2.916	2.923	2.916	2.915	2.911	2.918	2.910	2.904	2.904	2.901	2.896	2.906	2.898
S18	2.906	2.907	2.909	2.910	2.901	2.895	2.903	2.896	2.890	2.891	2.891	2.890	2.891	2.884	2.884	2.885	2.876	2.882
S19	2.910	2.915	2.908	2.912	2.906	2.902	2.903	2.901	2.901	2.904	2.903	2.892	2.896	2.890	2.889	2.887	2.882	2.892
S20	2.876	2.877	2.877	2.867	2.867	2.873	2.871	2.859	2.863	2.865	2.856	2.858	2.858	2.852	2.851	2.846	2.853	2.842
S21	2.924	2.896	2.896	2.889	2.896	2.895	2.886	2.880	2.880	2.882	2.880	2.880	2.875	2.873	2.870	2.872	2.867	2.869
S22	2.907	2.881	2.888	2.881	2.880	2.884	2.885	2.870	2.874	2.870	2.874	2.874	2.863	2.868	2.862	2.857	2.857	2.864
S23	2.911	2.906	2.900	2.892	2.900	2.890	2.899	2.888	2.895	2.891	2.884	2.877	2.879	2.882	2.876	2.879	2.873	2.871
S24	2.912	2.890	2.887	2.892	2.883	2.888	2.879	2.879	2.878	2.869	2.880	2.874	2.873	2.871	2.872	2.856	2.861	2.857
S25	2.904	2.892	2.883	2.883	2.880	2.876	2.887	2.876	2.880	2.873	2.869	2.865	2.870	2.870	2.870	2.866	2.866	2.860
Ave.	2.910	2.907	2.906	2.904	2.903	2.901	2.899	2.896	2.893	2.892	2.890	2.889	2.887	2.884	2.883	2.881	2.880	2.878
Med.	2.907	2.908	2.909	2.909	2.906	2.903	2.902	2.899	2.895	2.895	2.890	2.891	2.891	2.886	2.884	2.884	2.882	2.882
St dev	0.0201	0.0147	0.0146	0.0155	0.0175	0.0145	0.0148	0.0164	0.0144	0.0148	0.0159	0.0153	0.0141	0.0142	0.0153	0.0162	0.0165	0.0157
Min.	2.864	2.877	2.875	2.867	2.866	2.867	2.861	2.859	2.861	2.859	2.854	2.852	2.856	2.849	2.846	2.844	2.842	2.842
Max.	2.952	2.931	2.931	2.926	2.934	2.921	2.923	2.923	2.919	2.922	2.918	2.914	2.907	2.908	2.906	2.909	2.912	2.909

3.5 Data Set 1, 85°C, 150mA (Chromaticity Shift)

Sample Number	u'	v'	CCT (K)	Chromaticity Shift (Δu'v')																
	0hr (Initial)			1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000hrs	12000hrs	18000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
S1	0.2595	0.5268	2766	0.0002	0.0004	0.0006	0.0007	0.0009	0.0012	0.0013	0.0015	0.0016	0.0017	0.0020	0.0022	0.0024	0.0025	0.0027	0.0029	0.0031
S2	0.2591	0.5265	2775	0.0001	0.0004	0.0005	0.0007	0.0009	0.0013	0.0015	0.0016	0.0019	0.0020	0.0022	0.0023	0.0025	0.0027	0.0029	0.0031	0.0032
S3	0.2596	0.5273	2762	0.0001	0.0003	0.0005	0.0007	0.0011	0.0013	0.0015	0.0017	0.0020	0.0021	0.0023	0.0024	0.0026	0.0028	0.0030	0.0032	0.0034
S4	0.2595	0.5281	2761	0.0001	0.0003	0.0005	0.0008	0.0012	0.0015	0.0016	0.0019	0.0021	0.0022	0.0025	0.0026	0.0028	0.0029	0.0031	0.0033	0.0035
S5	0.2598	0.5283	2754	0.0002	0.0004	0.0006	0.0007	0.0010	0.0014	0.0015	0.0017	0.0019	0.0020	0.0023	0.0024	0.0026	0.0028	0.0030	0.0032	0.0033
S6	0.2591	0.5264	2775	0.0001	0.0004	0.0006	0.0007	0.0011	0.0014	0.0017	0.0018	0.0020	0.0021	0.0023	0.0025	0.0027	0.0029	0.0030	0.0032	0.0034
S7	0.2591	0.5266	2775	0.0002	0.0003	0.0005	0.0007	0.0011	0.0013	0.0016	0.0017	0.0019	0.0020	0.0023	0.0024	0.0026	0.0028	0.0030	0.0032	0.0034
S8	0.2600	0.5279	2751	0.0002	0.0003	0.0005	0.0007	0.0009	0.0013	0.0014	0.0016	0.0017	0.0019	0.0021	0.0023	0.0025	0.0027	0.0029	0.0030	0.0032
S9	0.2594	0.5271	2767	0.0001	0.0002	0.0005	0.0007	0.0009	0.0013	0.0015	0.0016	0.0018	0.0020	0.0022	0.0023	0.0025	0.0027	0.0029	0.0030	0.0032
S10	0.2594	0.5266	2769	0.0002	0.0003	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019	0.0020	0.0022	0.0024	0.0026	0.0028	0.0029	0.0031	0.0033
S11	0.2593	0.5261	2774	0.0001	0.0003	0.0005	0.0008	0.0011	0.0014	0.0017	0.0018	0.0020	0.0022	0.0025	0.0026	0.0028	0.0030	0.0032	0.0034	0.0036
S12	0.2596	0.5277	2760	0.0002	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0016	0.0018	0.0020	0.0022	0.0023	0.0025	0.0027	0.0029	0.0031	0.0032
S13	0.2592	0.5275	2769	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0018	0.0020	0.0022	0.0024	0.0026	0.0027	0.0029	0.0032
S14	0.2599	0.5272	2755	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0017	0.0018	0.0020	0.0022	0.0024	0.0025	0.0027	0.0029	0.0031	0.0033
S15	0.2590	0.5260	2781	0.0001	0.0003	0.0005	0.0006	0.0009	0.0012	0.0015	0.0016	0.0018	0.0020	0.0022	0.0023	0.0025	0.0027	0.0028	0.0030	0.0032
S16	0.2591	0.5258	2780	0.0001	0.0004	0.0005	0.0007	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021	0.0024	0.0025	0.0027	0.0028	0.0030	0.0032	0.0034
S17	0.2589	0.5260	2783	0.0002	0.0003	0.0005	0.0006	0.0010	0.0014	0.0015	0.0017	0.0018	0.0019	0.0022	0.0023	0.0024	0.0026	0.0028	0.0030	0.0032
S18	0.2584	0.5258	2793	0.0002	0.0004	0.0006	0.0007	0.0009	0.0011	0.0014	0.0016	0.0017	0.0018	0.0021	0.0022	0.0024	0.0026	0.0028	0.0030	0.0032
S19	0.2587	0.5274	2781	0.0001	0.0003	0.0005	0.0008	0.0010	0.0013	0.0014	0.0016	0.0017	0.0019	0.0021	0.0023	0.0025	0.0026	0.0028	0.0030	0.0032
S20	0.2587	0.5260	2788	0.0002	0.0004	0.0005	0.0007	0.0009	0.0013	0.0014	0.0016	0.0017	0.0019	0.0021	0.0023	0.0024	0.0026	0.0028	0.0030	0.0032
S21	0.2584	0.5259	2794	0.0002	0.0003	0.0005	0.0006	0.0010	0.0013	0.0015	0.0017	0.0019	0.0020	0.0023	0.0024	0.0026	0.0028	0.0029	0.0031	0.0033
S22	0.2590	0.5275	2772	0.0001	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0014	0.0015	0.0017	0.0019	0.0021	0.0023	0.0025	0.0026	0.0028	0.0030
S23	0.2586	0.5264	2786	0.0002	0.0003	0.0005	0.0007	0.0011	0.0014	0.0016	0.0018	0.0019	0.0021	0.0024	0.0026	0.0028	0.0029	0.0031	0.0033	0.0035
S24	0.2585	0.5257	2792	0.0001	0.0002	0.0005	0.0006	0.0009	0.0011	0.0013	0.0016	0.0018	0.0020	0.0022	0.0024	0.0026	0.0028	0.0030	0.0031	0.0033
S25	0.2594	0.5271	2767	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0016	0.0018	0.0019	0.0022	0.0023	0.0025	0.0027	0.0029	0.0031	0.0032
Ave.	0.2592	0.5268	2773	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0017	0.0018	0.0020	0.0022	0.0024	0.0025	0.0027	0.0029	0.0031	0.0033
Med.	0.2591	0.5266	2774	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0016	0.0018	0.0020	0.0022	0.0023	0.0025	0.0027	0.0029	0.0031	0.0032
St dev	0.0005	0.0008	12.3187	0.0000	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2584	0.5257	2751	0.0001	0.0002	0.0005	0.0006	0.0009	0.0011	0.0013	0.0014	0.0015	0.0017	0.0019	0.0021	0.0023	0.0025	0.0026	0.0028	0.0030
Max.	0.2600	0.5283	2794	0.0002	0.0004	0.0006	0.0009	0.0012	0.0015	0.0017	0.0019	0.0021	0.0022	0.0025	0.0026	0.0028	0.0030	0.0032	0.0034	0.0036

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

Sample Number	Φ(lm)	Lumen Maintenance (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S26	76.99	100.13	99.92	99.62	99.30	98.99	98.75	98.49	98.24	98.02	97.86	97.67	97.48	97.30	97.10	96.96	96.82	96.68
S27	77.12	100.14	99.93	99.62	99.31	99.01	98.69	98.45	98.19	97.97	97.76	97.57	97.38	97.21	97.01	96.83	96.69	96.55
S28	77.34	100.10	99.89	99.59	99.29	98.98	98.68	98.43	98.17	97.95	97.79	97.55	97.31	97.14	96.99	96.88	96.78	96.63
S29	77.28	100.10	99.89	99.59	99.35	99.12	98.88	98.63	98.38	98.15	97.95	97.75	97.56	97.36	97.16	96.98	96.84	96.74
S30	76.81	100.16	99.95	99.64	99.33	99.03	98.73	98.48	98.23	98.01	97.85	97.65	97.46	97.29	97.15	97.00	96.86	96.76
S31	76.93	100.12	99.90	99.59	99.30	99.06	98.75	98.48	98.23	98.00	97.84	97.60	97.41	97.27	97.09	96.98	96.87	96.77
S32	77.04	100.17	99.96	99.66	99.43	99.19	98.88	98.62	98.37	98.14	97.94	97.70	97.51	97.33	97.13	96.99	96.88	96.78
S33	77.07	100.16	99.95	99.64	99.33	99.01	98.78	98.53	98.28	98.05	97.84	97.65	97.41	97.27	97.06	96.92	96.78	96.67
S34	77.01	100.17	99.96	99.66	99.36	99.13	98.81	98.55	98.30	98.08	97.87	97.63	97.39	97.22	97.02	96.90	96.80	96.70
S35	77.23	100.14	99.93	99.63	99.39	99.09	98.78	98.52	98.26	98.04	97.83	97.59	97.36	97.21	97.01	96.87	96.76	96.66
S36	77.59	100.16	99.94	99.64	99.34	99.03	98.71	98.46	98.19	97.96	97.76	97.52	97.33	97.18	97.04	96.90	96.75	96.65
S37	77.95	100.12	99.91	99.61	99.29	99.06	98.74	98.49	98.23	98.01	97.80	97.61	97.42	97.27	97.13	96.96	96.82	96.71
S38	77.67	100.10	99.89	99.59	99.28	98.96	98.73	98.46	98.22	98.00	97.84	97.60	97.36	97.22	97.01	96.87	96.77	96.66
S39	77.69	100.13	99.92	99.61	99.38	99.08	98.85	98.58	98.33	98.10	97.89	97.65	97.46	97.26	97.09	96.97	96.83	96.69
S40	77.50	100.11	99.90	99.60	99.36	99.13	98.83	98.57	98.31	98.09	97.88	97.65	97.45	97.25	97.05	96.87	96.77	96.66
S41	77.67	100.16	99.95	99.65	99.34	99.02	98.70	98.44	98.18	97.96	97.75	97.51	97.27	97.10	96.90	96.78	96.68	96.57
S42	77.41	100.18	99.96	99.66	99.34	99.11	98.87	98.62	98.36	98.13	97.92	97.69	97.45	97.30	97.16	96.99	96.88	96.78
S43	77.87	100.16	99.94	99.64	99.34	99.11	98.87	98.61	98.35	98.14	97.93	97.70	97.46	97.25	97.11	96.97	96.86	96.76
S44	77.59	100.14	99.93	99.62	99.31	99.01	98.71	98.46	98.20	97.96	97.80	97.56	97.32	97.12	96.92	96.74	96.64	96.50
S45	77.81	100.18	99.96	99.66	99.42	99.13	98.81	98.56	98.31	98.09	97.89	97.65	97.41	97.27	97.10	96.92	96.82	96.71
S46	77.85	100.11	99.90	99.60	99.29	98.97	98.65	98.39	98.14	97.91	97.70	97.46	97.27	97.10	96.92	96.78	96.68	96.57
S47	77.97	100.09	99.88	99.58	99.35	99.05	98.73	98.48	98.23	98.01	97.85	97.66	97.46	97.32	97.12	96.94	96.84	96.74
S48	77.80	100.14	99.92	99.62	99.32	99.01	98.69	98.43	98.18	97.94	97.78	97.59	97.35	97.21	97.07	96.95	96.81	96.71
S49	78.24	100.16	99.95	99.64	99.33	99.03	98.71	98.45	98.19	97.97	97.76	97.53	97.33	97.16	96.96	96.78	96.64	96.54
S50	77.92	100.10	99.88	99.58	99.28	98.98	98.75	98.50	98.25	98.02	97.86	97.62	97.38	97.21	97.07	96.89	96.75	96.65
Ave.	77.49	100.14	99.92	99.62	99.33	99.05	98.76	98.51	98.25	98.03	97.84	97.61	97.40	97.23	97.05	96.91	96.79	96.67
Med.	77.59	100.14	99.93	99.62	99.33	99.03	98.75	98.49	98.23	98.01	97.84	97.62	97.41	97.25	97.07	96.92	96.80	96.68
St dev	0.3926	0.0281	0.0277	0.0266	0.0410	0.0609	0.0681	0.0684	0.0694	0.0701	0.0648	0.0683	0.0731	0.0714	0.0756	0.0746	0.0731	0.0778
Min.	76.81	100.09	99.88	99.58	99.28	98.96	98.65	98.39	98.14	97.91	97.70	97.46	97.27	97.10	96.90	96.74	96.64	96.50
Max.	78.24	100.18	99.96	99.66	99.43	99.19	98.88	98.63	98.38	98.15	97.95	97.75	97.56	97.36	97.16	97.00	96.88	96.78

3.7 Data Set 2, 105°C, 150mA (Photon Flux Maintenance, Photosynthetic (PFMp))

Sample Number	PPF (umol/s)	Photon Flux Maintenance, Photosynthetic (PFMp) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S26	1.091	100.22	99.97	99.73	99.45	99.19	98.95	98.68	98.43	98.19	97.99	97.73	97.53	97.36	97.21	97.09	96.94	96.85
S27	1.091	100.14	99.88	99.64	99.31	99.02	98.78	98.51	98.26	97.98	97.78	97.51	97.25	97.09	96.97	96.84	96.73	96.61
S28	1.092	100.16	99.91	99.65	99.35	99.08	98.79	98.52	98.27	97.99	97.79	97.52	97.26	97.10	96.98	96.85	96.70	96.59
S29	1.092	100.15	99.90	99.65	99.35	99.06	98.79	98.52	98.24	98.00	97.77	97.57	97.38	97.20	97.06	96.93	96.79	96.67
S30	1.092	100.16	99.91	99.66	99.39	99.12	98.89	98.61	98.37	98.12	97.93	97.66	97.43	97.27	97.13	96.98	96.84	96.75
S31	1.092	100.14	99.89	99.64	99.33	99.10	98.83	98.56	98.32	98.04	97.84	97.61	97.38	97.22	97.10	96.95	96.81	96.69
S32	1.092	100.17	99.92	99.67	99.36	99.07	98.84	98.56	98.28	98.00	97.80	97.61	97.34	97.17	97.02	96.90	96.78	96.67
S33	1.092	100.13	99.88	99.63	99.33	99.09	98.86	98.58	98.30	98.02	97.75	97.55	97.29	97.13	97.01	96.88	96.76	96.65
S34	1.092	100.18	99.93	99.68	99.40	99.11	98.88	98.56	98.32	98.04	97.77	97.50	97.24	97.08	96.95	96.83	96.71	96.63
S35	1.092	100.19	99.94	99.69	99.38	99.12	98.85	98.58	98.33	98.08	97.85	97.66	97.43	97.25	97.13	97.00	96.85	96.74
S36	1.103	100.15	99.91	99.65	99.38	99.11	98.88	98.60	98.32	98.07	97.88	97.65	97.45	97.30	97.15	97.03	96.88	96.77
S37	1.104	100.19	99.94	99.70	99.39	99.13	98.89	98.62	98.34	98.09	97.83	97.60	97.37	97.19	97.06	96.94	96.79	96.68
S38	1.104	100.16	99.91	99.66	99.33	99.06	98.83	98.55	98.27	98.02	97.79	97.53	97.29	97.14	97.01	96.89	96.74	96.63
S39	1.104	100.22	99.97	99.72	99.41	99.12	98.89	98.58	98.29	98.05	97.78	97.59	97.32	97.17	97.04	96.89	96.78	96.69
S40	1.104	100.21	99.96	99.71	99.38	99.12	98.88	98.61	98.36	98.08	97.85	97.62	97.42	97.27	97.14	97.00	96.88	96.77
S41	1.104	100.20	99.96	99.71	99.44	99.17	98.90	98.59	98.31	98.07	97.84	97.60	97.34	97.18	97.06	96.91	96.77	96.68
S42	1.104	100.20	99.95	99.70	99.37	99.08	98.79	98.52	98.27	98.02	97.79	97.52	97.33	97.18	97.03	96.89	96.77	96.69
S43	1.104	100.18	99.93	99.69	99.41	99.18	98.94	98.67	98.39	98.14	97.95	97.72	97.52	97.35	97.22	97.09	96.95	96.86
S44	1.104	100.14	99.89	99.64	99.37	99.10	98.84	98.57	98.28	98.04	97.81	97.58	97.39	97.23	97.09	96.96	96.82	96.70
S45	1.104	100.16	99.91	99.66	99.33	99.04	98.77	98.49	98.25	98.01	97.74	97.47	97.28	97.10	96.98	96.85	96.74	96.65
S46	1.108	100.18	99.93	99.68	99.35	99.09	98.80	98.52	98.28	98.03	97.80	97.57	97.31	97.13	96.99	96.84	96.73	96.64
S47	1.108	100.14	99.90	99.65	99.37	99.14	98.87	98.56	98.27	98.03	97.80	97.53	97.34	97.16	97.02	96.89	96.78	96.66
S48	1.109	100.22	99.97	99.72	99.39	99.15	98.92	98.64	98.36	98.11	97.92	97.69	97.49	97.32	97.19	97.05	96.93	96.82
S49	1.109	100.18	99.93	99.68	99.35	99.12	98.83	98.51	98.23	97.99	97.80	97.53	97.33	97.18	97.05	96.93	96.78	96.67
S50	1.109	100.15	99.90	99.65	99.32	99.09	98.86	98.58	98.34	98.05	97.82	97.63	97.36	97.21	97.08	96.96	96.84	96.73
Ave.	1.100	100.17	99.92	99.67	99.37	99.11	98.85	98.57	98.31	98.05	97.83	97.59	97.36	97.20	97.07	96.94	96.80	96.70
Med.	1.104	100.17	99.92	99.67	99.37	99.11	98.86	98.57	98.30	98.04	97.80	97.59	97.34	97.18	97.06	96.93	96.78	96.68
St dev	0.0071	0.0283	0.0280	0.0285	0.0361	0.0408	0.0495	0.0496	0.0491	0.0519	0.0629	0.0672	0.0811	0.0783	0.0766	0.0758	0.0704	0.0717
Min.	1.091	100.13	99.88	99.63	99.31	99.02	98.77	98.49	98.23	97.98	97.74	97.47	97.24	97.08	96.95	96.83	96.70	96.59
Max.	1.109	100.22	99.97	99.73	99.45	99.19	98.95	98.68	98.43	98.19	97.99	97.73	97.53	97.36	97.22	97.09	96.95	96.86

3.8 Data Set 2, 105°C, 150mA (Photon Flux Maintenance,Far-Red (PFM_{FR}))

Sample Number	PPF (umol/s)	Photon Flux Maintenance,Far-Red (PFM_{FR}) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S26	0.0421	100.07	99.81	99.54	99.26	98.96	98.68	98.39	98.12	97.88	97.68	97.49	97.29	97.15	97.01	96.86	96.76	96.66
S27	0.0421	100.09	99.87	99.65	99.39	99.14	98.84	98.56	98.32	98.09	97.88	97.69	97.49	97.34	97.14	97.00	96.83	96.67
S28	0.0421	100.11	99.85	99.63	99.34	99.06	98.77	98.50	98.22	97.94	97.75	97.55	97.36	97.22	97.07	96.93	96.77	96.67
S29	0.0421	100.08	99.82	99.56	99.27	98.98	98.68	98.41	98.12	97.89	97.69	97.49	97.28	97.14	96.94	96.75	96.64	96.54
S30	0.0421	100.15	99.93	99.72	99.46	99.16	98.90	98.62	98.34	98.06	97.87	97.68	97.49	97.34	97.15	96.95	96.78	96.62
S31	0.0422	100.04	99.78	99.52	99.22	98.96	98.67	98.43	98.16	97.87	97.66	97.47	97.26	97.12	96.98	96.78	96.62	96.52
S32	0.0421	100.11	99.90	99.68	99.38	99.12	98.84	98.60	98.37	98.08	97.87	97.68	97.49	97.35	97.20	97.05	96.89	96.73
S33	0.0421	100.12	99.86	99.60	99.31	99.05	98.79	98.52	98.23	97.95	97.76	97.55	97.36	97.22	97.07	96.93	96.76	96.59
S34	0.0421	100.12	99.90	99.68	99.40	99.14	98.88	98.64	98.36	98.13	97.93	97.73	97.54	97.40	97.20	97.06	96.90	96.74
S35	0.0421	100.06	99.80	99.58	99.32	99.04	98.75	98.52	98.24	97.96	97.77	97.56	97.35	97.15	97.00	96.86	96.70	96.53
S36	0.0424	100.15	99.94	99.67	99.41	99.12	98.83	98.56	98.27	97.99	97.78	97.59	97.40	97.20	97.06	96.91	96.74	96.58
S37	0.0425	100.14	99.87	99.66	99.40	99.14	98.84	98.57	98.29	98.00	97.81	97.60	97.39	97.19	97.05	96.85	96.69	96.52
S38	0.0424	100.11	99.90	99.68	99.39	99.09	98.80	98.52	98.28	98.00	97.81	97.61	97.40	97.26	97.06	96.92	96.76	96.60
S39	0.0424	100.14	99.88	99.66	99.36	99.08	98.78	98.55	98.26	97.98	97.78	97.59	97.40	97.20	97.00	96.86	96.69	96.59
S40	0.0424	100.09	99.83	99.61	99.35	99.06	98.76	98.48	98.20	97.92	97.73	97.52	97.31	97.11	96.96	96.76	96.60	96.45
S41	0.0424	100.15	99.93	99.71	99.45	99.17	98.91	98.67	98.40	98.11	97.92	97.73	97.52	97.32	97.18	97.03	96.88	96.78
S42	0.0424	100.11	99.89	99.63	99.34	99.06	98.77	98.54	98.26	98.02	97.83	97.64	97.45	97.25	97.05	96.91	96.81	96.64
S43	0.0425	100.07	99.85	99.63	99.37	99.12	98.86	98.58	98.30	98.02	97.81	97.62	97.43	97.28	97.09	96.89	96.73	96.63
S44	0.0425	100.15	99.94	99.67	99.42	99.16	98.90	98.66	98.43	98.19	98.00	97.81	97.62	97.47	97.33	97.19	97.03	96.86
S45	0.0425	100.10	99.88	99.66	99.38	99.08	98.79	98.55	98.27	98.04	97.83	97.62	97.43	97.28	97.13	96.99	96.82	96.66
S46	0.0428	100.09	99.88	99.61	99.33	99.04	98.78	98.50	98.22	97.93	97.72	97.53	97.32	97.18	97.03	96.88	96.71	96.61
S47	0.0428	100.08	99.87	99.60	99.32	99.06	98.77	98.49	98.26	98.02	97.82	97.61	97.42	97.28	97.13	96.98	96.88	96.71
S48	0.0428	100.12	99.90	99.68	99.43	99.14	98.85	98.62	98.33	98.10	97.89	97.70	97.51	97.37	97.22	97.08	96.98	96.82
S49	0.0428	100.09	99.87	99.61	99.32	99.03	98.74	98.50	98.26	98.03	97.84	97.63	97.42	97.28	97.14	97.00	96.83	96.73
S50	0.0428	100.08	99.86	99.64	99.36	99.10	98.84	98.56	98.28	98.00	97.81	97.61	97.42	97.27	97.08	96.88	96.78	96.62
Ave.	0.0424	100.11	99.87	99.64	99.36	99.08	98.80	98.54	98.27	98.01	97.81	97.61	97.41	97.25	97.09	96.93	96.78	96.64
Med.	0.0424	100.11	99.87	99.64	99.36	99.08	98.79	98.55	98.27	98.00	97.81	97.61	97.42	97.26	97.07	96.92	96.77	96.63
St dev	0.0003	0.0306	0.0421	0.0504	0.0576	0.0594	0.0673	0.0727	0.0776	0.0817	0.0814	0.0836	0.0875	0.0922	0.0910	0.1039	0.1041	0.0981
Min.	0.0421	100.04	99.78	99.52	99.22	98.96	98.67	98.39	98.12	97.87	97.66	97.47	97.26	97.11	96.94	96.75	96.60	96.45
Max.	0.0428	100.15	99.94	99.72	99.46	99.17	98.91	98.67	98.43	98.19	98.00	97.81	97.62	97.47	97.33	97.19	97.03	96.86

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

Sample Number	Forward Voltage(V)																	
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000hrs
S26	2.930	2.927	2.931	2.927	2.920	2.921	2.917	2.919	2.921	2.918	2.918	2.911	2.905	2.907	2.908	2.902	2.896	2.905
S27	2.918	2.920	2.917	2.915	2.908	2.910	2.911	2.904	2.906	2.899	2.900	2.900	2.902	2.902	2.897	2.895	2.893	2.895
S28	2.920	2.916	2.916	2.917	2.912	2.907	2.905	2.906	2.911	2.902	2.903	2.906	2.900	2.893	2.900	2.900	2.889	2.896
S29	2.914	2.908	2.911	2.904	2.904	2.908	2.906	2.905	2.900	2.898	2.901	2.896	2.898	2.894	2.894	2.889	2.883	2.885
S30	2.933	2.929	2.932	2.931	2.930	2.928	2.927	2.929	2.919	2.926	2.919	2.909	2.908	2.915	2.911	2.903	2.908	2.898
S31	2.929	2.924	2.925	2.919	2.928	2.916	2.916	2.917	2.917	2.913	2.911	2.908	2.905	2.911	2.910	2.899	2.896	2.898
S32	2.921	2.923	2.918	2.920	2.913	2.913	2.916	2.915	2.909	2.903	2.902	2.904	2.901	2.897	2.900	2.900	2.897	2.896
S33	2.916	2.915	2.911	2.907	2.906	2.911	2.901	2.905	2.900	2.909	2.897	2.897	2.900	2.900	2.894	2.885	2.881	2.881
S34	2.920	2.915	2.921	2.909	2.910	2.904	2.906	2.916	2.907	2.902	2.903	2.901	2.895	2.896	2.892	2.895	2.897	2.888
S35	2.884	2.878	2.880	2.874	2.876	2.875	2.878	2.870	2.873	2.868	2.870	2.865	2.864	2.868	2.859	2.861	2.853	2.859
S36	2.942	2.944	2.937	2.940	2.931	2.933	2.926	2.933	2.926	2.924	2.924	2.923	2.915	2.915	2.916	2.913	2.910	2.918
S37	2.922	2.919	2.923	2.921	2.913	2.915	2.916	2.906	2.913	2.906	2.902	2.904	2.906	2.902	2.902	2.892	2.898	2.889
S38	2.920	2.917	2.914	2.917	2.910	2.913	2.911	2.908	2.908	2.909	2.902	2.900	2.897	2.900	2.898	2.891	2.885	2.885
S39	2.917	2.911	2.913	2.916	2.906	2.911	2.911	2.908	2.903	2.910	2.899	2.897	2.897	2.897	2.891	2.891	2.891	2.883
S40	2.933	2.934	2.928	2.925	2.930	2.917	2.924	2.919	2.921	2.926	2.912	2.915	2.915	2.915	2.912	2.903	2.904	2.898
S41	2.927	2.924	2.923	2.919	2.917	2.921	2.920	2.913	2.913	2.908	2.908	2.909	2.903	2.907	2.897	2.897	2.893	2.904
S42	2.938	2.940	2.934	2.935	2.937	2.932	2.926	2.927	2.927	2.931	2.919	2.925	2.922	2.918	2.917	2.917	2.913	2.903
S43	2.918	2.917	2.915	2.908	2.917	2.912	2.909	2.904	2.904	2.899	2.898	2.898	2.895	2.891	2.898	2.897	2.893	2.883
S44	2.924	2.921	2.921	2.923	2.921	2.918	2.910	2.911	2.912	2.905	2.907	2.912	2.908	2.906	2.902	2.893	2.900	2.890
S45	2.886	2.887	2.887	2.883	2.876	2.880	2.880	2.872	2.882	2.875	2.868	2.871	2.859	2.859	2.856	2.857	2.854	2.851
S46	2.907	2.906	2.902	2.898	2.904	2.891	2.894	2.893	2.893	2.895	2.893	2.889	2.891	2.889	2.882	2.886	2.872	2.878
S47	2.897	2.899	2.892	2.894	2.887	2.883	2.890	2.881	2.888	2.884	2.884	2.873	2.881	2.881	2.868	2.878	2.866	2.869
S48	2.911	2.913	2.906	2.907	2.909	2.898	2.905	2.897	2.895	2.901	2.894	2.899	2.885	2.884	2.881	2.889	2.879	2.875
S49	2.901	2.902	2.897	2.898	2.894	2.895	2.895	2.895	2.897	2.883	2.889	2.886	2.885	2.881	2.870	2.875	2.877	2.875
S50	2.899	2.896	2.896	2.890	2.889	2.890	2.886	2.885	2.886	2.880	2.875	2.880	2.879	2.881	2.876	2.874	2.874	2.865
Ave.	2.917	2.915	2.914	2.912	2.910	2.908	2.907	2.906	2.905	2.903	2.900	2.899	2.897	2.896	2.893	2.891	2.888	2.887
Med.	2.920	2.917	2.916	2.916	2.910	2.911	2.910	2.906	2.907	2.903	2.902	2.900	2.900	2.897	2.897	2.893	2.893	2.888
St dev	0.0148	0.0152	0.0149	0.0160	0.0161	0.0154	0.0139	0.0162	0.0139	0.0160	0.0145	0.0151	0.0148	0.0148	0.0170	0.0141	0.0157	0.0155
Min.	2.884	2.878	2.880	2.874	2.876	2.875	2.878	2.870	2.873	2.868	2.868	2.865	2.859	2.859	2.856	2.857	2.853	2.851
Max.	2.942	2.944	2.937	2.940	2.937	2.933	2.927	2.933	2.927	2.931	2.924	2.925	2.922	2.918	2.917	2.917	2.913	2.918

3.10 Data Set 2, 105°C, 150mA (Chromaticity Shift)

Sample Number	u'	v'	CCT (K)	Chromaticity Shift (Δu'v')																
	0hr (Initial)			1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
S26	0.2593	0.5289	2760	0.0001	0.0005	0.0008	0.0012	0.0013	0.0016	0.0019	0.0022	0.0024	0.0026	0.0028	0.0029	0.0032	0.0035	0.0038	0.0039	0.0042
S27	0.2590	0.5285	2768	0.0003	0.0006	0.0008	0.0011	0.0013	0.0016	0.0019	0.0020	0.0023	0.0024	0.0026	0.0029	0.0031	0.0034	0.0037	0.0040	0.0041
S28	0.2594	0.5301	2754	0.0003	0.0004	0.0009	0.0010	0.0011	0.0014	0.0016	0.0018	0.0020	0.0023	0.0024	0.0026	0.0028	0.0029	0.0032	0.0034	0.0036
S29	0.2599	0.5298	2744	0.0003	0.0005	0.0008	0.0009	0.0010	0.0012	0.0015	0.0017	0.0020	0.0022	0.0024	0.0026	0.0028	0.0031	0.0033	0.0034	0.0037
S30	0.2590	0.5286	2768	0.0003	0.0005	0.0006	0.0009	0.0010	0.0011	0.0013	0.0014	0.0016	0.0018	0.0021	0.0023	0.0026	0.0027	0.0029	0.0031	0.0034
S31	0.2595	0.5293	2755	0.0002	0.0004	0.0006	0.0009	0.0011	0.0012	0.0014	0.0015	0.0018	0.0020	0.0022	0.0025	0.0026	0.0029	0.0032	0.0034	0.0037
S32	0.2591	0.5283	2767	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021	0.0023	0.0025	0.0027	0.0030	0.0033	0.0034	0.0036	0.0038
S33	0.2597	0.5302	2747	0.0001	0.0003	0.0006	0.0007	0.0010	0.0011	0.0013	0.0016	0.0019	0.0021	0.0023	0.0025	0.0028	0.0029	0.0032	0.0034	0.0036
S34	0.2593	0.5291	2761	0.0003	0.0005	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020	0.0022	0.0025	0.0027	0.0028	0.0031	0.0034	0.0036	0.0039
S35	0.2593	0.5286	2761	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014	0.0015	0.0018	0.0020	0.0023	0.0025	0.0027	0.0030	0.0033	0.0035	0.0037	0.0039
S36	0.2593	0.5280	2763	0.0003	0.0005	0.0008	0.0010	0.0011	0.0012	0.0015	0.0017	0.0019	0.0021	0.0024	0.0026	0.0028	0.0030	0.0032	0.0034	0.0037
S37	0.2593	0.5293	2759	0.0002	0.0004	0.0006	0.0007	0.0010	0.0013	0.0015	0.0017	0.0019	0.0021	0.0024	0.0026	0.0029	0.0032	0.0033	0.0036	0.0038
S38	0.2596	0.5294	2752	0.0003	0.0005	0.0007	0.0008	0.0009	0.0013	0.0014	0.0017	0.0019	0.0020	0.0022	0.0025	0.0026	0.0029	0.0031	0.0033	0.0035
S39	0.2590	0.5277	2772	0.0003	0.0004	0.0008	0.0011	0.0014	0.0016	0.0017	0.0020	0.0022	0.0024	0.0026	0.0029	0.0032	0.0033	0.0035	0.0037	0.0040
S40	0.2594	0.5285	2761	0.0003	0.0005	0.0008	0.0010	0.0012	0.0015	0.0017	0.0019	0.0021	0.0023	0.0025	0.0026	0.0027	0.0030	0.0033	0.0035	0.0037
S41	0.2591	0.5276	2771	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0016	0.0018	0.0021	0.0023	0.0026	0.0028	0.0031	0.0034	0.0036	0.0039	0.0042
S42	0.2590	0.5277	2772	0.0003	0.0004	0.0007	0.0010	0.0011	0.0013	0.0014	0.0017	0.0019	0.0021	0.0023	0.0025	0.0028	0.0031	0.0033	0.0035	0.0038
S43	0.2599	0.5290	2748	0.0002	0.0005	0.0008	0.0009	0.0012	0.0014	0.0017	0.0020	0.0022	0.0024	0.0025	0.0028	0.0029	0.0031	0.0034	0.0037	0.0038
S44	0.2593	0.5282	2764	0.0002	0.0004	0.0006	0.0007	0.0009	0.0012	0.0015	0.0018	0.0019	0.0022	0.0024	0.0026	0.0028	0.0029	0.0031	0.0034	0.0036
S45	0.2593	0.5278	2766	0.0003	0.0004	0.0007	0.0010	0.0013	0.0016	0.0018	0.0020	0.0022	0.0024	0.0026	0.0028	0.0031	0.0033	0.0036	0.0037	0.0040
S46	0.2597	0.5281	2755	0.0003	0.0005	0.0008	0.0009	0.0013	0.0015	0.0017	0.0019	0.0021	0.0023	0.0026	0.0028	0.0031	0.0033	0.0036	0.0039	0.0042
S47	0.2594	0.5278	2764	0.0001	0.0003	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0019	0.0021	0.0023	0.0025	0.0027	0.0030	0.0033	0.0036	0.0038
S48	0.2598	0.5285	2751	0.0003	0.0004	0.0008	0.0011	0.0014	0.0017	0.0020	0.0022	0.0024	0.0026	0.0029	0.0031	0.0034	0.0036	0.0039	0.0041	0.0044
S49	0.2597	0.5294	2751	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0014	0.0016	0.0017	0.0020	0.0022	0.0023	0.0026	0.0029	0.0031	0.0033	0.0036
S50	0.2600	0.5294	2744	0.0001	0.0003	0.0007	0.0011	0.0012	0.0014	0.0017	0.0019	0.0021	0.0023	0.0025	0.0027	0.0030	0.0033	0.0036	0.0039	0.0042
Ave.	0.2594	0.5287	2759	0.0002	0.0004	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020	0.0022	0.0024	0.0027	0.0029	0.0031	0.0034	0.0036	0.0039
Med.	0.2593	0.5286	2761	0.0003	0.0005	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020	0.0023	0.0025	0.0026	0.0028	0.0031	0.0033	0.0036	0.0038
St dev	0.0003	0.0008	8.6232	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
Min.	0.2590	0.5276	2744	0.0001	0.0003	0.0006	0.0007	0.0009	0.0011	0.0013	0.0014	0.0016	0.0018	0.0021	0.0023	0.0026	0.0027	0.0029	0.0031	0.0034
Max.	0.2600	0.5302	2772	0.0003	0.0006	0.0009	0.0012	0.0014	0.0017	0.0020	0.0022	0.0024	0.0026	0.0029	0.0031	0.0034	0.0036	0.0039	0.0041	0.0044

3.11 Data Set 3, 115°C, 150mA (Lumen Maintenance)

Sample Number	Φ(lm)	Lumen Maintenance (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S51	76.59	100.08	99.81	99.46	99.15	98.86	98.50	98.24	97.98	97.71	97.43	97.15	96.99	96.84	96.69	96.52	96.35	96.18
S52	76.35	100.07	99.76	99.41	99.11	98.80	98.45	98.19	97.93	97.66	97.44	97.22	97.06	96.89	96.72	96.56	96.40	96.30
S53	76.70	100.00	99.74	99.38	99.10	98.82	98.46	98.19	97.93	97.66	97.43	97.20	97.06	96.92	96.75	96.60	96.43	96.26
S54	77.02	100.09	99.78	99.42	99.11	98.80	98.45	98.12	97.85	97.58	97.30	97.08	96.94	96.79	96.63	96.48	96.31	96.14
S55	77.23	100.05	99.73	99.43	99.11	98.83	98.50	98.17	97.91	97.58	97.34	97.12	96.92	96.75	96.61	96.46	96.30	96.20
S56	77.24	100.04	99.73	99.38	99.09	98.80	98.48	98.22	97.96	97.68	97.46	97.18	97.02	96.88	96.73	96.56	96.40	96.23
S57	77.37	100.05	99.73	99.38	99.09	98.80	98.47	98.14	97.88	97.61	97.33	97.09	96.95	96.78	96.62	96.47	96.30	96.13
S58	77.34	100.02	99.76	99.40	99.09	98.80	98.47	98.14	97.81	97.53	97.29	97.06	96.86	96.69	96.55	96.39	96.29	96.13
S59	77.20	100.07	99.76	99.41	99.09	98.78	98.45	98.17	97.84	97.57	97.29	97.05	96.86	96.71	96.54	96.40	96.30	96.20
S60	77.88	100.09	99.78	99.43	99.14	98.83	98.50	98.24	97.96	97.70	97.48	97.26	97.10	96.95	96.79	96.62	96.52	96.42
S61	78.43	100.06	99.79	99.48	99.20	98.92	98.59	98.31	98.04	97.76	97.48	97.26	97.06	96.92	96.76	96.60	96.44	96.34
S62	78.34	100.06	99.79	99.44	99.14	98.86	98.51	98.23	97.96	97.63	97.39	97.17	97.02	96.86	96.71	96.54	96.44	96.28
S63	78.14	100.01	99.75	99.39	99.11	98.83	98.47	98.14	97.87	97.59	97.32	97.09	96.90	96.75	96.60	96.45	96.35	96.25
S64	78.09	99.99	99.72	99.37	99.08	98.77	98.42	98.16	97.83	97.55	97.27	97.04	96.89	96.75	96.58	96.43	96.33	96.16
S65	78.30	100.01	99.69	99.39	99.09	98.78	98.43	98.16	97.83	97.55	97.33	97.10	96.96	96.82	96.65	96.49	96.33	96.16
S66	78.03	100.06	99.79	99.49	99.18	98.86	98.53	98.26	97.99	97.73	97.50	97.27	97.11	96.97	96.81	96.66	96.56	96.46
S67	77.83	100.00	99.69	99.38	99.09	98.78	98.43	98.10	97.83	97.56	97.34	97.10	96.90	96.74	96.60	96.44	96.28	96.18
S68	78.11	100.07	99.76	99.40	99.12	98.81	98.48	98.22	97.89	97.61	97.33	97.09	96.94	96.79	96.65	96.48	96.38	96.21
S69	78.42	100.04	99.77	99.42	99.11	98.82	98.48	98.22	97.95	97.69	97.41	97.13	96.97	96.80	96.66	96.50	96.34	96.17
S70	78.35	100.00	99.73	99.42	99.13	98.82	98.50	98.23	97.90	97.63	97.35	97.13	96.93	96.77	96.62	96.45	96.28	96.18
S71	78.23	100.04	99.77	99.46	99.18	98.90	98.54	98.27	98.01	97.74	97.52	97.30	97.10	96.94	96.79	96.64	96.48	96.38
S72	78.31	100.03	99.72	99.41	99.12	98.81	98.48	98.20	97.93	97.67	97.39	97.17	97.01	96.86	96.71	96.55	96.45	96.29
S73	78.10	99.98	99.67	99.32	99.03	98.74	98.41	98.08	97.75	97.48	97.25	97.03	96.87	96.70	96.54	96.38	96.22	96.12
S74	78.00	99.99	99.67	99.37	99.05	98.77	98.45	98.12	97.79	97.52	97.25	97.01	96.85	96.69	96.55	96.38	96.21	96.04
S75	78.03	100.01	99.69	99.39	99.10	98.80	98.48	98.22	97.89	97.63	97.35	97.11	96.97	96.82	96.68	96.52	96.35	96.25
Ave.	77.75	100.04	99.74	99.41	99.11	98.82	98.48	98.19	97.90	97.62	97.37	97.14	96.97	96.82	96.66	96.50	96.36	96.23
Med.	78.03	100.04	99.75	99.41	99.11	98.81	98.48	98.19	97.90	97.63	97.35	97.12	96.96	96.80	96.65	96.49	96.35	96.20
St dev	0.6230	0.0341	0.0391	0.0386	0.0381	0.0397	0.0401	0.0575	0.0726	0.0748	0.0792	0.0799	0.0816	0.0841	0.0826	0.0818	0.0878	0.0987
Min.	76.35	99.98	99.67	99.32	99.03	98.74	98.41	98.08	97.75	97.48	97.25	97.01	96.85	96.69	96.54	96.38	96.21	96.04
Max.	78.43	100.09	99.81	99.49	99.20	98.92	98.59	98.31	98.04	97.76	97.52	97.30	97.11	96.97	96.81	96.66	96.56	96.46

3.12 Data Set 3, 115°C, 150mA (Photon Flux Maintenance, Photosynthetic (PFMp))

Sample Number	PPF (umol/s)	Photon Flux Maintenance, Photosynthetic (PFMp) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S51	1.087	100.09	99.76	99.41	99.09	98.81	98.49	98.18	97.93	97.70	97.46	97.23	97.05	96.93	96.80	96.67	96.54	96.41
S52	1.087	100.10	99.78	99.43	99.11	98.80	98.47	98.16	97.84	97.55	97.28	97.03	96.82	96.69	96.51	96.38	96.25	96.17
S53	1.088	100.11	99.82	99.47	99.13	98.85	98.53	98.21	97.90	97.61	97.38	97.11	96.92	96.73	96.60	96.47	96.39	96.26
S54	1.098	100.12	99.84	99.48	99.15	98.86	98.54	98.23	97.98	97.69	97.46	97.23	97.02	96.89	96.76	96.57	96.44	96.31
S55	1.099	100.09	99.76	99.41	99.08	98.77	98.43	98.11	97.86	97.58	97.31	97.04	96.85	96.72	96.59	96.41	96.28	96.16
S56	1.100	100.09	99.81	99.49	99.17	98.89	98.57	98.26	97.94	97.65	97.41	97.13	96.92	96.74	96.55	96.42	96.34	96.25
S57	1.101	100.11	99.83	99.51	99.19	98.91	98.59	98.34	98.03	97.80	97.53	97.26	97.05	96.92	96.79	96.61	96.48	96.35
S58	1.101	100.15	99.83	99.51	99.17	98.87	98.55	98.23	97.91	97.63	97.39	97.15	96.98	96.79	96.66	96.53	96.41	96.28
S59	1.101	100.06	99.73	99.42	99.10	98.79	98.48	98.17	97.86	97.63	97.39	97.15	96.97	96.84	96.65	96.52	96.39	96.30
S60	1.112	100.11	99.83	99.48	99.14	98.83	98.51	98.20	97.89	97.60	97.37	97.14	96.96	96.84	96.71	96.52	96.39	96.25
S61	1.112	100.10	99.81	99.49	99.18	98.87	98.55	98.24	97.92	97.64	97.41	97.16	96.99	96.86	96.74	96.61	96.48	96.35
S62	1.112	100.13	99.84	99.49	99.17	98.88	98.55	98.29	98.04	97.75	97.52	97.29	97.08	96.95	96.82	96.69	96.56	96.43
S63	1.113	100.10	99.82	99.50	99.16	98.86	98.52	98.20	97.89	97.60	97.37	97.10	96.89	96.70	96.57	96.45	96.32	96.19
S64	1.113	100.05	99.73	99.42	99.10	98.81	98.49	98.24	97.92	97.64	97.41	97.16	96.97	96.84	96.66	96.53	96.39	96.31
S65	1.113	100.08	99.79	99.44	99.13	98.84	98.52	98.21	97.89	97.67	97.40	97.15	96.98	96.85	96.72	96.54	96.40	96.32
S66	1.107	100.10	99.78	99.46	99.12	98.84	98.50	98.18	97.87	97.59	97.32	97.09	96.90	96.77	96.65	96.52	96.43	96.35
S67	1.108	100.15	99.86	99.54	99.23	98.94	98.62	98.31	98.06	97.78	97.53	97.26	97.07	96.94	96.81	96.69	96.60	96.52
S68	1.108	100.13	99.81	99.50	99.18	98.89	98.55	98.24	97.93	97.71	97.46	97.19	97.00	96.87	96.69	96.56	96.43	96.31
S69	1.108	100.10	99.82	99.50	99.16	98.88	98.56	98.24	97.99	97.77	97.54	97.29	97.08	96.89	96.76	96.58	96.44	96.36
S70	1.108	100.07	99.75	99.44	99.10	98.81	98.50	98.18	97.86	97.57	97.34	97.11	96.94	96.81	96.62	96.50	96.41	96.28
S71	1.108	100.10	99.78	99.43	99.11	98.82	98.49	98.17	97.86	97.58	97.31	97.06	96.89	96.76	96.58	96.45	96.32	96.19
S72	1.109	100.15	99.83	99.51	99.17	98.89	98.57	98.25	97.94	97.66	97.43	97.18	96.99	96.86	96.68	96.55	96.42	96.33
S73	1.109	100.14	99.85	99.54	99.22	98.93	98.61	98.36	98.05	97.76	97.52	97.24	97.03	96.90	96.78	96.65	96.52	96.44
S74	1.109	100.05	99.73	99.41	99.09	98.81	98.47	98.15	97.84	97.55	97.32	97.09	96.90	96.77	96.59	96.40	96.28	96.15
S75	1.115	100.09	99.77	99.45	99.11	98.83	98.51	98.26	97.94	97.66	97.41	97.14	96.95	96.82	96.69	96.57	96.44	96.31
Ave.	1.105	100.10	99.80	99.47	99.14	98.85	98.53	98.23	97.93	97.66	97.41	97.16	96.97	96.83	96.68	96.53	96.41	96.30
Med.	1.108	100.10	99.81	99.48	99.14	98.85	98.52	98.23	97.92	97.64	97.41	97.15	96.97	96.84	96.68	96.53	96.41	96.31
St dev	0.0082	0.0283	0.0381	0.0411	0.0413	0.0434	0.0468	0.0588	0.0658	0.0737	0.0762	0.0742	0.0707	0.0764	0.0888	0.0881	0.0877	0.0911
Min.	1.087	100.05	99.73	99.41	99.08	98.77	98.43	98.11	97.84	97.55	97.28	97.03	96.82	96.69	96.51	96.38	96.25	96.15
Max.	1.115	100.15	99.86	99.54	99.23	98.94	98.62	98.36	98.06	97.80	97.54	97.29	97.08	96.95	96.82	96.69	96.60	96.52

3.13 Data Set 3, 115°C, 150mA (Photon Flux Maintenance,Far-Red (PFM_{FR}))

Sample Number	PPF (umol/s)	Photon Flux Maintenance,Far-Red (PFM_{FR}) (%)																
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000 hrs
S51	0.0419	99.99	99.69	99.41	99.11	98.77	98.44	98.14	97.85	97.61	97.34	97.13	96.94	96.80	96.58	96.38	96.25	96.11
S52	0.0420	100.03	99.72	99.45	99.08	98.81	98.54	98.24	97.98	97.74	97.50	97.28	97.10	96.88	96.74	96.61	96.48	96.32
S53	0.0420	100.01	99.71	99.43	99.06	98.74	98.40	98.10	97.81	97.57	97.34	97.12	96.96	96.74	96.60	96.47	96.34	96.20
S54	0.0424	100.05	99.74	99.47	99.17	98.84	98.51	98.21	97.87	97.61	97.34	97.09	96.94	96.79	96.65	96.45	96.32	96.16
S55	0.0424	100.04	99.73	99.46	99.10	98.77	98.43	98.14	97.84	97.53	97.29	97.07	96.89	96.67	96.52	96.40	96.25	96.11
S56	0.0426	100.01	99.70	99.43	99.12	98.85	98.52	98.26	97.99	97.72	97.46	97.24	97.08	96.86	96.72	96.60	96.44	96.32
S57	0.0425	100.04	99.73	99.46	99.09	98.75	98.48	98.22	97.95	97.71	97.47	97.25	97.06	96.92	96.70	96.58	96.43	96.29
S58	0.0425	99.98	99.68	99.40	99.04	98.77	98.43	98.09	97.80	97.56	97.32	97.07	96.91	96.77	96.62	96.50	96.38	96.22
S59	0.0426	100.04	99.74	99.46	99.16	98.89	98.55	98.21	97.92	97.65	97.38	97.14	96.98	96.83	96.69	96.56	96.44	96.32
S60	0.0430	99.99	99.69	99.41	99.11	98.84	98.50	98.23	97.89	97.66	97.39	97.14	96.98	96.84	96.62	96.42	96.27	96.13
S61	0.0430	100.01	99.71	99.43	99.07	98.73	98.41	98.14	97.84	97.61	97.34	97.13	96.96	96.82	96.60	96.48	96.35	96.22
S62	0.0430	100.01	99.70	99.43	99.06	98.79	98.45	98.18	97.89	97.62	97.36	97.14	96.95	96.81	96.67	96.54	96.42	96.26
S63	0.0430	99.97	99.67	99.39	99.03	98.69	98.35	98.06	97.76	97.45	97.22	97.01	96.85	96.70	96.56	96.43	96.31	96.16
S64	0.0429	100.01	99.71	99.43	99.13	98.86	98.52	98.18	97.91	97.61	97.36	97.12	96.96	96.74	96.52	96.32	96.19	96.04
S65	0.0430	100.00	99.70	99.42	99.12	98.85	98.51	98.17	97.83	97.52	97.28	97.06	96.90	96.69	96.54	96.34	96.19	96.06
S66	0.0419	100.01	99.71	99.44	99.13	98.80	98.46	98.12	97.85	97.62	97.38	97.13	96.97	96.83	96.69	96.56	96.43	96.30
S67	0.0419	100.04	99.73	99.46	99.15	98.82	98.49	98.16	97.89	97.65	97.41	97.16	97.00	96.79	96.64	96.52	96.37	96.21
S68	0.0420	100.02	99.72	99.44	99.07	98.80	98.47	98.21	97.87	97.56	97.32	97.07	96.91	96.70	96.48	96.36	96.20	96.08
S69	0.0419	100.03	99.73	99.45	99.15	98.87	98.54	98.24	97.95	97.64	97.40	97.18	96.99	96.78	96.63	96.51	96.38	96.22
S70	0.0419	99.97	99.66	99.39	99.02	98.68	98.36	98.06	97.77	97.53	97.26	97.05	96.89	96.74	96.52	96.40	96.28	96.14
S71	0.0419	100.04	99.74	99.46	99.16	98.89	98.61	98.32	98.02	97.79	97.55	97.30	97.11	96.97	96.82	96.63	96.49	96.36
S72	0.0420	99.99	99.69	99.41	99.05	98.78	98.44	98.10	97.76	97.53	97.29	97.04	96.88	96.73	96.59	96.39	96.27	96.15
S73	0.0420	100.01	99.71	99.43	99.07	98.80	98.53	98.26	97.92	97.66	97.42	97.17	97.02	96.88	96.66	96.46	96.34	96.21
S74	0.0420	100.00	99.70	99.42	99.12	98.85	98.51	98.21	97.95	97.71	97.47	97.22	97.03	96.89	96.75	96.55	96.43	96.29
S75	0.0430	100.00	99.69	99.41	99.11	98.78	98.45	98.16	97.89	97.63	97.39	97.14	96.98	96.77	96.62	96.50	96.38	96.22
Ave.	0.0424	100.01	99.71	99.43	99.10	98.80	98.48	98.18	97.88	97.62	97.37	97.14	96.97	96.80	96.63	96.48	96.34	96.20
Med.	0.0424	100.01	99.71	99.43	99.11	98.80	98.48	98.18	97.89	97.62	97.36	97.13	96.96	96.79	96.62	96.48	96.35	96.21
St dev	0.0004	0.0225	0.0226	0.0227	0.0423	0.0555	0.0618	0.0663	0.0707	0.0782	0.0781	0.0762	0.0701	0.0763	0.0820	0.0874	0.0896	0.0897
Min.	0.0419	99.97	99.66	99.39	99.02	98.68	98.35	98.06	97.76	97.45	97.22	97.01	96.85	96.67	96.48	96.32	96.19	96.04
Max.	0.0430	100.05	99.74	99.47	99.17	98.89	98.61	98.32	98.02	97.79	97.55	97.30	97.11	96.97	96.82	96.63	96.49	96.36

3.14 Data Set 3, 115°C, 150mA (Forward Voltage)

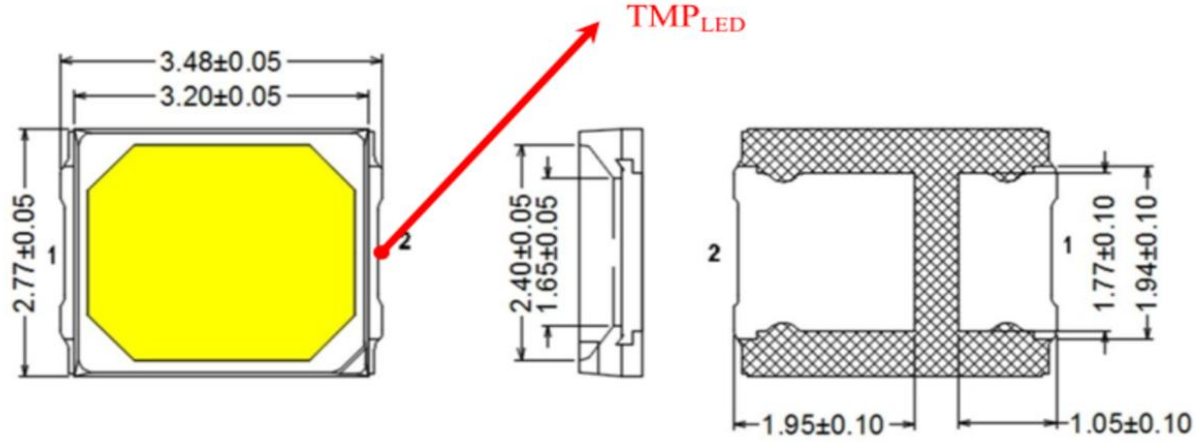
Sample Number	Forward Voltage(V)																	
	0hr (Initial)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000 hrs	11000 hrs	12000 hrs	13000 hrs	14000 hrs	15000 hrs	16000 hrs	17000hrs
S51	2.867	2.865	2.865	2.860	2.858	2.856	2.857	2.852	2.853	2.854	2.845	2.845	2.843	2.846	2.838	2.835	2.838	2.838
S52	2.903	2.896	2.901	2.896	2.896	2.896	2.895	2.893	2.884	2.884	2.881	2.882	2.882	2.879	2.873	2.874	2.869	2.877
S53	2.896	2.890	2.894	2.888	2.889	2.884	2.886	2.886	2.883	2.877	2.877	2.877	2.871	2.875	2.867	2.866	2.867	2.860
S54	2.916	2.915	2.911	2.911	2.912	2.909	2.905	2.904	2.902	2.899	2.898	2.898	2.892	2.890	2.891	2.887	2.888	2.887
S55	2.904	2.901	2.895	2.898	2.896	2.895	2.892	2.893	2.887	2.885	2.886	2.886	2.884	2.880	2.881	2.881	2.878	2.876
S56	2.941	2.939	2.941	2.936	2.933	2.932	2.931	2.930	2.924	2.928	2.925	2.917	2.918	2.917	2.912	2.911	2.912	2.907
S57	2.927	2.925	2.919	2.919	2.923	2.923	2.913	2.917	2.916	2.913	2.910	2.911	2.901	2.901	2.904	2.902	2.899	2.898
S58	2.940	2.933	2.937	2.936	2.931	2.934	2.933	2.926	2.921	2.921	2.924	2.923	2.917	2.914	2.912	2.910	2.914	2.911
S59	2.944	2.942	2.938	2.937	2.939	2.938	2.930	2.934	2.931	2.925	2.925	2.926	2.918	2.917	2.917	2.917	2.907	2.907
S60	2.952	2.952	2.952	2.947	2.943	2.940	2.942	2.941	2.934	2.933	2.936	2.928	2.925	2.931	2.929	2.929	2.924	2.917
S61	2.934	2.931	2.935	2.927	2.926	2.927	2.926	2.924	2.918	2.920	2.916	2.910	2.911	2.915	2.906	2.905	2.906	2.906
S62	2.932	2.929	2.932	2.927	2.924	2.921	2.921	2.924	2.921	2.913	2.912	2.910	2.908	2.905	2.904	2.906	2.906	2.906
S63	2.933	2.927	2.926	2.927	2.924	2.927	2.923	2.918	2.922	2.922	2.916	2.915	2.914	2.909	2.910	2.910	2.897	2.905
S64	2.935	2.935	2.927	2.927	2.924	2.923	2.927	2.925	2.918	2.916	2.913	2.915	2.915	2.909	2.903	2.912	2.907	2.907
S65	2.900	2.901	2.899	2.894	2.889	2.890	2.890	2.893	2.887	2.887	2.878	2.876	2.877	2.874	2.877	2.872	2.874	2.864
S66	2.947	2.944	2.939	2.939	2.941	2.936	2.935	2.932	2.931	2.936	2.927	2.929	2.920	2.922	2.917	2.922	2.921	2.911
S67	2.944	2.942	2.938	2.944	2.939	2.937	2.937	2.933	2.928	2.933	2.925	2.926	2.920	2.924	2.914	2.921	2.918	2.916
S68	2.930	2.927	2.930	2.923	2.924	2.924	2.919	2.915	2.911	2.917	2.914	2.908	2.905	2.906	2.907	2.902	2.899	2.894
S69	2.936	2.933	2.934	2.928	2.926	2.927	2.926	2.926	2.923	2.917	2.920	2.921	2.912	2.911	2.908	2.908	2.907	2.900
S70	2.931	2.929	2.931	2.927	2.922	2.924	2.924	2.920	2.918	2.914	2.913	2.909	2.910	2.904	2.908	2.901	2.902	2.894
S71	2.936	2.937	2.930	2.929	2.926	2.929	2.923	2.923	2.918	2.923	2.920	2.914	2.915	2.911	2.913	2.913	2.907	2.910
S72	2.904	2.902	2.898	2.897	2.894	2.893	2.897	2.890	2.893	2.885	2.889	2.888	2.881	2.879	2.881	2.880	2.868	2.868
S73	2.939	2.932	2.939	2.935	2.933	2.930	2.927	2.927	2.923	2.928	2.924	2.921	2.918	2.918	2.914	2.916	2.908	2.902
S74	2.944	2.943	2.938	2.938	2.933	2.938	2.933	2.933	2.928	2.928	2.928	2.926	2.925	2.923	2.912	2.914	2.915	2.918
S75	2.912	2.909	2.905	2.910	2.907	2.901	2.897	2.902	2.899	2.899	2.895	2.897	2.888	2.893	2.889	2.882	2.884	2.876
Ave.	2.926	2.923	2.922	2.920	2.918	2.917	2.916	2.914	2.911	2.910	2.908	2.906	2.903	2.902	2.900	2.899	2.897	2.894
Med.	2.933	2.929	2.930	2.927	2.924	2.924	2.923	2.923	2.918	2.917	2.914	2.911	2.911	2.909	2.907	2.906	2.906	2.902
St dev	0.0204	0.0208	0.0206	0.0210	0.0207	0.0213	0.0205	0.0204	0.0199	0.0209	0.0215	0.0208	0.0204	0.0203	0.0203	0.0217	0.0209	0.0207
Min.	2.867	2.865	2.865	2.860	2.858	2.856	2.857	2.852	2.853	2.854	2.845	2.845	2.843	2.846	2.838	2.835	2.838	2.838
Max.	2.952	2.952	2.952	2.947	2.943	2.940	2.942	2.941	2.934	2.936	2.936	2.929	2.925	2.931	2.929	2.929	2.924	2.918

3.15 Data Set 3, 115°C, 150mA (Chromaticity Shift)

Sample Number	u'	v'	CCT (K)	Chromaticity Shift (Δu'v')																
	0hr (Initial)			1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs	10000hrs	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
S51	0.2597	0.5278	2758	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0021	0.0023	0.0026	0.0028	0.0030	0.0032	0.0034	0.0035	0.0037	0.0039	0.0041
S52	0.2596	0.5284	2756	0.0003	0.0005	0.0008	0.0011	0.0015	0.0019	0.0022	0.0024	0.0027	0.0028	0.0030	0.0032	0.0034	0.0036	0.0037	0.0040	0.0042
S53	0.2602	0.5291	2740	0.0002	0.0005	0.0008	0.0011	0.0015	0.0018	0.0020	0.0023	0.0025	0.0027	0.0029	0.0031	0.0034	0.0035	0.0037	0.0040	0.0042
S54	0.2593	0.5278	2766	0.0002	0.0005	0.0007	0.0011	0.0013	0.0016	0.0020	0.0022	0.0025	0.0027	0.0029	0.0031	0.0033	0.0035	0.0036	0.0039	0.0041
S55	0.2594	0.5276	2763	0.0002	0.0005	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021	0.0024	0.0025	0.0027	0.0029	0.0030	0.0032	0.0033	0.0036	0.0039
S56	0.2576	0.5262	2809	0.0003	0.0005	0.0008	0.0009	0.0013	0.0016	0.0020	0.0022	0.0025	0.0027	0.0029	0.0031	0.0032	0.0034	0.0036	0.0038	0.0041
S57	0.2573	0.5259	2817	0.0003	0.0005	0.0008	0.0012	0.0015	0.0019	0.0021	0.0024	0.0026	0.0028	0.0029	0.0031	0.0035	0.0038	0.0040	0.0043	0.0045
S58	0.2574	0.5257	2817	0.0003	0.0005	0.0008	0.0011	0.0015	0.0016	0.0019	0.0021	0.0024	0.0026	0.0028	0.0030	0.0033	0.0035	0.0038	0.0041	0.0043
S59	0.2578	0.5267	2804	0.0003	0.0006	0.0008	0.0011	0.0015	0.0018	0.0021	0.0024	0.0027	0.0029	0.0031	0.0034	0.0035	0.0039	0.0040	0.0043	0.0045
S60	0.2573	0.5259	2818	0.0003	0.0005	0.0008	0.0009	0.0013	0.0014	0.0017	0.0020	0.0022	0.0024	0.0026	0.0028	0.0029	0.0031	0.0034	0.0037	0.0040
S61	0.2576	0.5274	2804	0.0003	0.0005	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021	0.0024	0.0025	0.0027	0.0029	0.0033	0.0036	0.0038	0.0040	0.0043
S62	0.2582	0.5272	2792	0.0002	0.0005	0.0008	0.0011	0.0013	0.0016	0.0018	0.0021	0.0023	0.0025	0.0027	0.0028	0.0030	0.0031	0.0033	0.0036	0.0038
S63	0.2579	0.5277	2797	0.0003	0.0005	0.0008	0.0011	0.0015	0.0018	0.0022	0.0025	0.0029	0.0031	0.0032	0.0034	0.0036	0.0039	0.0041	0.0044	0.0046
S64	0.2575	0.5265	2812	0.0002	0.0005	0.0008	0.0011	0.0015	0.0016	0.0019	0.0021	0.0024	0.0027	0.0028	0.0030	0.0033	0.0037	0.0038	0.0041	0.0044
S65	0.2576	0.5260	2811	0.0002	0.0005	0.0008	0.0009	0.0011	0.0014	0.0017	0.0020	0.0023	0.0025	0.0026	0.0028	0.0030	0.0032	0.0033	0.0036	0.0038
S66	0.2575	0.5267	2810	0.0003	0.0005	0.0007	0.0009	0.0010	0.0014	0.0018	0.0020	0.0022	0.0024	0.0026	0.0028	0.0029	0.0031	0.0032	0.0035	0.0037
S67	0.2573	0.5263	2816	0.0003	0.0005	0.0008	0.0011	0.0015	0.0018	0.0021	0.0024	0.0027	0.0028	0.0030	0.0032	0.0033	0.0035	0.0036	0.0039	0.0041
S68	0.2578	0.5281	2796	0.0002	0.0005	0.0007	0.0011	0.0012	0.0016	0.0018	0.0022	0.0025	0.0027	0.0029	0.0031	0.0033	0.0034	0.0036	0.0038	0.0041
S69	0.2575	0.5279	2805	0.0002	0.0005	0.0007	0.0011	0.0014	0.0018	0.0021	0.0024	0.0028	0.0029	0.0031	0.0033	0.0035	0.0036	0.0038	0.0040	0.0043
S70	0.2580	0.5277	2794	0.0002	0.0005	0.0007	0.0011	0.0013	0.0014	0.0016	0.0019	0.0021	0.0023	0.0025	0.0027	0.0029	0.0030	0.0033	0.0036	0.0039
S71	0.2571	0.5264	2821	0.0003	0.0006	0.0008	0.0012	0.0015	0.0019	0.0022	0.0026	0.0029	0.0031	0.0033	0.0035	0.0036	0.0037	0.0041	0.0043	0.0046
S72	0.2575	0.5265	2811	0.0003	0.0005	0.0008	0.0011	0.0013	0.0015	0.0017	0.0020	0.0023	0.0024	0.0026	0.0028	0.0031	0.0033	0.0034	0.0037	0.0040
S73	0.2574	0.5269	2810	0.0002	0.0005	0.0008	0.0011	0.0015	0.0018	0.0021	0.0025	0.0027	0.0029	0.0030	0.0032	0.0035	0.0039	0.0040	0.0043	0.0045
S74	0.2576	0.5272	2805	0.0002	0.0005	0.0008	0.0011	0.0015	0.0018	0.0021	0.0023	0.0025	0.0027	0.0029	0.0031	0.0032	0.0034	0.0035	0.0038	0.0041
S75	0.2596	0.5274	2760	0.0002	0.0005	0.0008	0.0011	0.0015	0.0016	0.0019	0.0021	0.0024	0.0026	0.0028	0.0029	0.0033	0.0034	0.0036	0.0039	0.0041
Ave.	0.2581	0.5271	2796	0.0003	0.0005	0.0008	0.0011	0.0014	0.0017	0.0019	0.0022	0.0025	0.0027	0.0029	0.0031	0.0033	0.0035	0.0037	0.0039	0.0042
Med.	0.2576	0.5272	2805	0.0003	0.0005	0.0008	0.0011	0.0015	0.0016	0.0020	0.0022	0.0025	0.0027	0.0029	0.0031	0.0033	0.0035	0.0036	0.0039	0.0041
St dev	0.0009	0.0009	23.6568	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003
Min.	0.2571	0.5257	2740	0.0002	0.0005	0.0007	0.0009	0.0010	0.0014	0.0016	0.0019	0.0021	0.0023	0.0025	0.0027	0.0029	0.0030	0.0032	0.0035	0.0037
Max.	0.2602	0.5291	2821	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0022	0.0026	0.0029	0.0031	0.0033	0.0035	0.0036	0.0039	0.0041	0.0044	0.0046

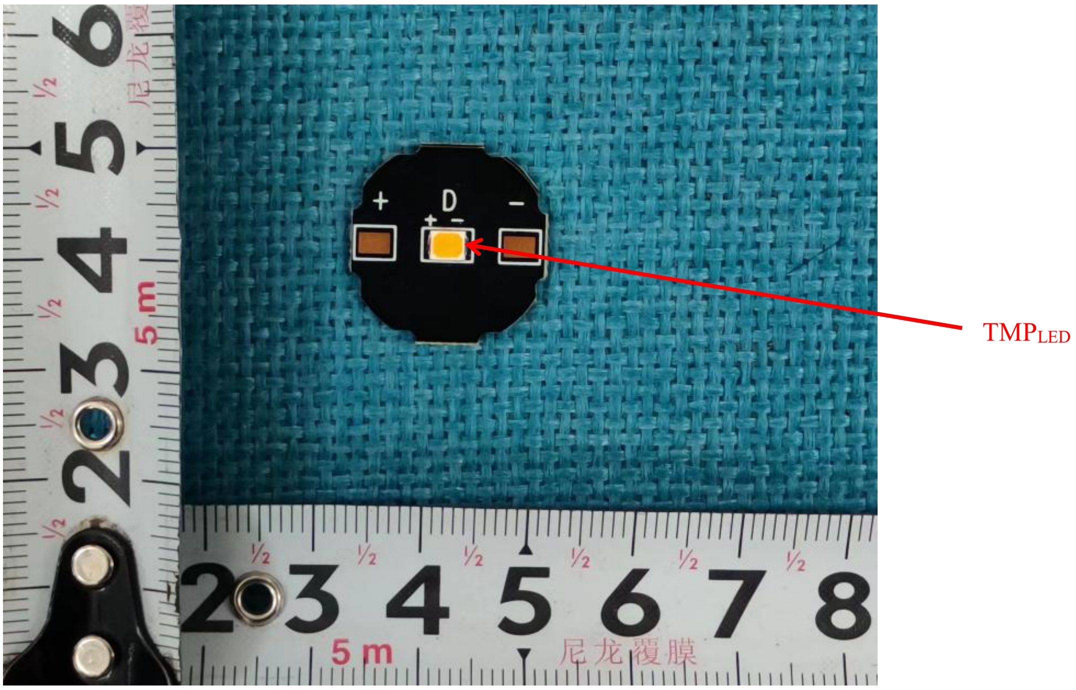
4. EUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 EUT Photo



---End of Report---