



TEST REPORT

According to ANSI/IES LM-80-15

For

Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

Model: HL-AF-3030D68W-B2C2-S1-08-PCT-HR5-DS

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Reviewed By:	Pote Wang	<i>Pote Wang</i>	
Report Number:	SZ2230509-25074E-EE-6000		
Test Date:	2023-05-11 to 2024-03-19		
Report Date:	2024-04-11		
Approved by:	Blake Zhang / EE Engineer		
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588		

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1 - General Information

1.1 Description of LED Light Sources[#]

Sample Size:

50 PCS test samples were in good condition and received on 2023-05-09. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Part Number:	HL-AF-3030D68W-B2C2-S1-08-PCT-HR5-DS
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	2700K
Power:	0.96W
Average Current Density per LED die:	572.17mA/mm ²
Average Power Density per LED die:	3.662W/mm ²
CRI:	90
Die Spacing:	0.2mm

Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

Family products covered by this report:

According to *ENERGY STAR[®] Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR[®] Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Series Name	Model Name	CRI	CCT (K)	Series & Parallel	Power density (W/mm ²)	Current density per LED die (mA/mm ²)	Current per die (mA)	Distance between of dies (mm)	Current (mA)
Test model	HL-AF-3030D68W-B2C2-S1-08-PCT-HR5-DS	90	2700K	B1C2+B1C2	0.1	572.17	150	0.2	150
Multiple models	HL-AF-3030D***W-B2C2-S1-08-PCT-HR*-DS-***	80-90	2700K-6500K	B1C2+B1C2	0.1	572.17	150	0.2	150
Multiple models	HL-AF-3030F***W-2-S1-08-PCT-HR*-DS-***	80-90	2700K-6500K	B1C1+B1C1	0.1	521.16	300	0.2	300
Multiple models	HL-AF-3030FV***W-2-S1-08-PCT-HR*-DS-***	80-90	2700K-6500K	B1C1+B1C1	0.0958	345.98	100	0.2	100
Multiple models	HL-AF-3030D***W-2-S1-08-PCT-HR*-DS-***	80-90	2700K-6500K	B1C1+B1C1	0.0933	572.17	280	0.2	280

Note: The model name begins with "HL", such as "HL-AF-3030D***W-***-S1-08*-PCT-HR*-DS-***", "*" is described in detail as follows:

1. The first "****" is a number from 1 to 999 which stands for the brightness level.
2. The second "****" is number B2C2 or 2 which stands for chip series parallel connection.
3. The third "*" is the letter L or HL or None which stands for the bonding wire style
4. The fourth "*" is the number 3 or 4 or 5 which stands for the different CRI style.
5. The fifth "****" is the letter, which stands for the customer code or None.

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR[®] Requirements for the Use of LM-80 Data (This standard was not accredited by IAS)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
High Accuracy Array Spectroradiometer	EVERFINE	HAAS 2000	P600674CM5391140	2023-09-02	2024-09-11
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2023-09-02	2024-09-11
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2023-09-02	2024-09-11
Standard Light Source	EVERFINE	D062	M133799CM1381112	2023-05-12	2025-05-11
Multilayer aging machine	BACL	B2-270	20015	2023-10-13	2024-10-12
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090005	2023-10-16	2024-10-15

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 $\pm 3\%$ of the specified value of the manufacturer during maintenance test, and was within $\pm 0.5\%$ during photometric and electrical measurement test.

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (T_{MP,LED}) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, T_{MP,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 $\pm 3\%$ 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 \pm 2°C, RH <65%.

1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate u'v'. 2 π measurement was used and sample was driven by DC power supply. The forward current was regulated to within $\pm 0.5\%$ of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to 25°C \pm 2°C, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output measurements is U=1.59% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=21K (K=2), at the 95% confidence level.

The uncertainty of the temperature is U=0.8671°C (K=2), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).



1.8 Sample Set

Data Set 1: 55°C, 150mA

Part Number: HL-AF-3030D68W-B2C2-S1-08-PCT-HR5-DS

Number of Units: 25

Case Temperature: >53°C

Ambient Temperature: >50°C

Life Test Drive Current: 150mA

Measurement Current: 150mA

Data Set 2: 105°C, 150mA

Part Number: HL-AF-3030D68W-B2C2-S1-08-PCT-HR5-DS

Number of Units: 25

Case Temperature: >103°C

Ambient Temperature: >100°C

Life Test Drive Current: 150mA

Measurement Current: 150mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 L ₇₀ Lifetime
1	25	0	1000hrs	6000hrs	2.075E-06	1.003	>36000 hours
2	25	0	1000hrs	6000hrs	2.748E-06	1.003	>36000 hours

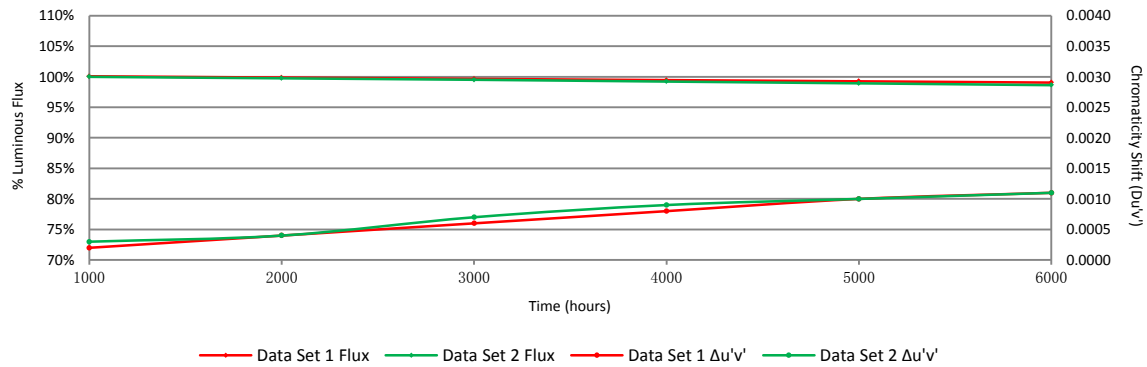
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.08%	99.86%	99.65%	99.45%	99.25%	99.04%
2	99.98%	99.74%	99.50%	99.21%	98.92%	98.62%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011
2	0.0003	0.0004	0.0007	0.0009	0.0010	0.0011

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 55°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	114.70	99.91	99.65	99.48	99.30	99.13	98.95
2	114.80	100.09	99.91	99.74	99.48	99.30	99.04
3	115.30	99.83	99.65	99.39	99.22	99.05	98.87
4	111.90	100.09	99.82	99.64	99.46	99.29	99.11
5	114.50	100.26	100.09	99.83	99.65	99.48	99.30
6	115.30	100.35	100.09	99.83	99.57	99.39	99.13
7	115.40	99.83	99.65	99.48	99.31	99.13	98.87
8	114.10	100.26	100.09	99.91	99.74	99.47	99.30
9	113.30	100.44	100.26	100.09	99.91	99.65	99.47
10	114.10	99.74	99.47	99.21	98.95	98.77	98.51
11	113.50	100.44	100.26	100.09	99.82	99.56	99.38
12	115.20	99.83	99.65	99.39	99.22	99.05	98.87
13	109.70	100.18	99.91	99.64	99.45	99.27	99.00
14	115.20	100.09	99.83	99.65	99.39	99.22	99.05
15	114.20	100.18	100.09	99.91	99.74	99.56	99.30
16	113.30	100.35	100.09	99.82	99.56	99.38	99.21
17	114.30	100.17	99.91	99.65	99.48	99.30	99.13
18	114.70	99.83	99.65	99.48	99.30	99.13	98.95
19	115.20	100.09	99.91	99.74	99.57	99.31	99.13
20	114.70	100.09	99.83	99.56	99.39	99.22	98.95
21	114.50	99.91	99.74	99.56	99.39	99.13	98.95
22	112.10	99.91	99.64	99.46	99.20	99.02	98.84
23	111.00	100.09	99.91	99.64	99.37	99.10	98.92
24	113.80	99.91	99.65	99.47	99.30	99.03	98.77
25	112.50	100.09	99.82	99.64	99.47	99.29	99.02
Avg.	113.89	100.08	99.86	99.65	99.45	99.25	99.04
Med.	114.30	100.09	99.83	99.64	99.45	99.27	99.02
st dev	1.46	0.20	0.21	0.22	0.22	0.20	0.21
Min.	109.70	99.74	99.47	99.21	98.95	98.77	98.51
Max.	115.40	100.44	100.26	100.09	99.91	99.65	99.47

3.2 Data Set 1, 55°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	6.210	6.235	6.195	6.196	6.202	6.205	6.208
2	6.203	6.259	6.189	6.195	6.197	6.195	6.199
3	6.305	6.307	6.262	6.270	6.272	6.269	6.270
4	6.240	6.233	6.231	6.233	6.239	6.239	6.245
5	6.291	6.288	6.274	6.279	6.275	6.283	6.288
6	6.283	6.298	6.273	6.278	6.282	6.282	6.284
7	6.291	6.295	6.271	6.273	6.278	6.275	6.276
8	6.289	6.287	6.275	6.280	6.284	6.277	6.283
9	6.312	6.302	6.199	6.207	6.204	6.200	6.208
10	6.266	6.262	6.254	6.257	6.264	6.259	6.263
11	6.201	6.269	6.190	6.198	6.190	6.193	6.203
12	6.225	6.246	6.216	6.219	6.217	6.218	6.220
13	6.236	6.336	6.227	6.229	6.236	6.235	6.242
14	6.275	6.268	6.267	6.276	6.268	6.270	6.280
15	6.292	6.285	6.198	6.200	6.205	6.200	6.207
16	6.251	6.248	6.242	6.243	6.245	6.249	6.252
17	6.272	6.286	6.266	6.273	6.274	6.270	6.280
18	6.268	6.271	6.259	6.259	6.261	6.267	6.276
19	6.270	6.267	6.261	6.266	6.267	6.268	6.273
20	6.205	6.239	6.193	6.200	6.202	6.201	6.204
21	6.287	6.281	6.275	6.283	6.277	6.283	6.287
22	6.263	6.279	6.259	6.260	6.269	6.267	6.269
23	6.255	6.252	6.244	6.251	6.250	6.246	6.255
24	6.197	6.330	6.187	6.195	6.195	6.191	6.197
25	6.236	6.263	6.231	6.238	6.239	6.238	6.244
Avg.	6.257	6.275	6.213	6.242	6.244	6.243	6.249
Med.	6.266	6.271	6.285	6.251	6.250	6.249	6.255
st dev	0.035	0.027	6.288	0.032	0.033	0.033	0.033
Min.	6.197	6.233	6.260	6.195	6.190	6.191	6.197
Max.	6.312	6.336	6.257	6.283	6.284	6.283	6.288

3.3 Data Set 1, 55°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2603	0.5271	2747	0.0003	0.0004	0.0004	0.0005	0.0007	0.0009
2	0.2620	0.5274	2711	0.0003	0.0006	0.0007	0.0008	0.0010	0.0010
3	0.2618	0.5269	2717	0.0003	0.0007	0.0009	0.0011	0.0011	0.0011
4	0.2649	0.5268	2653	0.0001	0.0006	0.0009	0.0010	0.0011	0.0013
5	0.2612	0.5268	2729	0.0002	0.0004	0.0007	0.0009	0.0010	0.0012
6	0.2614	0.5275	2722	0.0002	0.0004	0.0007	0.0009	0.0009	0.0011
7	0.2585	0.5273	2785	0.0002	0.0004	0.0006	0.0008	0.0010	0.0010
8	0.2626	0.5273	2697	0.0001	0.0004	0.0005	0.0007	0.0007	0.0009
9	0.2623	0.5267	2707	0.0002	0.0004	0.0006	0.0008	0.0010	0.0010
10	0.2626	0.5266	2701	0.0003	0.0005	0.0007	0.0009	0.0010	0.0010
11	0.2621	0.5264	2712	0.0001	0.0004	0.0006	0.0008	0.0010	0.0010
12	0.2611	0.5274	2730	0.0003	0.0005	0.0009	0.0012	0.0013	0.0013
13	0.2666	0.5260	2622	0.0001	0.0004	0.0006	0.0009	0.0011	0.0012
14	0.2616	0.5282	2716	0.0001	0.0004	0.0006	0.0008	0.0009	0.0011
15	0.2620	0.5262	2715	0.0001	0.0005	0.0006	0.0008	0.0009	0.0011
16	0.2618	0.5250	2723	0.0001	0.0003	0.0006	0.0009	0.0009	0.0011
17	0.2627	0.5265	2699	0.0001	0.0003	0.0006	0.0009	0.0009	0.0011
18	0.2618	0.5269	2716	0.0001	0.0004	0.0004	0.0007	0.0009	0.0010
19	0.2622	0.5279	2705	0.0003	0.0003	0.0007	0.0009	0.0010	0.0011
20	0.2611	0.5260	2735	0.0002	0.0006	0.0007	0.0009	0.0010	0.0010
21	0.2611	0.5273	2729	0.0003	0.0005	0.0005	0.0008	0.0008	0.0010
22	0.2658	0.5272	2633	0.0001	0.0004	0.0006	0.0009	0.0009	0.0011
23	0.2665	0.5273	2619	0.0001	0.0004	0.0005	0.0009	0.0011	0.0011
24	0.2612	0.5271	2728	0.0000	0.0002	0.0007	0.0008	0.0009	0.0010
25	0.2643	0.5271	2664	0.0001	0.0004	0.0006	0.0008	0.0009	0.0010
Avg.	0.2624	0.5269	2705	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011
Med.	0.2620	0.5271	2715	0.0001	0.0004	0.0006	0.0009	0.0010	0.0011
st dev	0.0019	0.0007	39	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2585	0.5250	2619	0.0000	0.0002	0.0004	0.0005	0.0007	0.0009
Max.	0.2666	0.5282	2785	0.0003	0.0007	0.0009	0.0012	0.0013	0.0013

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	114.70	100.44	100.09	99.83	99.48	99.13	98.78
27	114.60	99.56	99.30	98.95	98.69	98.34	98.08
28	115.40	99.91	99.65	99.39	99.13	98.79	98.53
29	113.90	99.74	99.39	99.12	98.86	98.51	98.16
30	109.70	99.82	99.64	99.45	99.09	98.81	98.54
31	115.10	100.35	100.17	99.91	99.57	99.30	99.04
32	111.60	100.45	100.18	99.91	99.55	99.28	98.92
33	114.80	100.17	99.91	99.74	99.39	99.13	98.78
34	112.10	100.09	99.91	99.64	99.38	99.11	98.84
35	110.10	100.36	100.18	99.91	99.64	99.36	99.09
36	114.30	100.26	100.17	99.91	99.65	99.39	99.04
37	111.30	100.36	100.09	99.82	99.55	99.28	98.92
38	115.70	99.83	99.65	99.48	99.22	98.96	98.70
39	115.60	100.09	99.83	99.65	99.39	99.13	98.88
40	114.90	99.83	99.65	99.48	99.22	98.96	98.61
41	115.10	99.57	99.30	99.04	98.78	98.52	98.26
42	115.00	99.83	99.57	99.30	99.04	98.78	98.43
43	115.40	99.83	99.65	99.39	99.05	98.79	98.53
44	113.80	99.47	99.21	99.03	98.77	98.42	98.15
45	113.50	99.82	99.47	99.21	98.94	98.68	98.33
46	115.20	99.74	99.48	99.22	98.96	98.61	98.35
47	114.00	100.26	99.91	99.65	99.39	99.12	98.77
48	113.40	99.74	99.38	99.12	98.85	98.50	98.24
49	111.00	99.91	99.73	99.55	99.28	99.01	98.74
50	115.40	100.09	99.91	99.65	99.39	99.13	98.79
Avg.	113.82	99.98	99.74	99.50	99.21	98.92	98.62
Med.	114.60	99.91	99.65	99.48	99.22	98.96	98.70
st dev	1.80	0.29	0.31	0.31	0.29	0.32	0.30
Min.	109.70	99.47	99.21	98.95	98.69	98.34	98.08
Max.	115.70	100.45	100.18	99.91	99.65	99.39	99.09

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

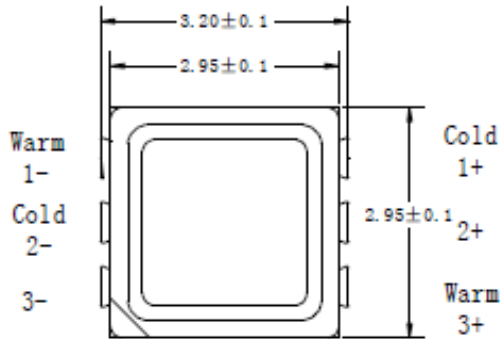
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.317	6.320	6.309	6.311	6.316	6.316	6.317
27	6.284	6.290	6.273	6.276	6.280	6.276	6.277
28	6.289	6.295	6.287	6.291	6.287	6.291	6.292
29	6.297	6.297	6.292	6.297	6.296	6.296	6.304
30	6.257	6.259	6.251	6.254	6.252	6.256	6.262
31	6.293	6.289	6.288	6.292	6.294	6.298	6.305
32	6.251	6.258	6.248	6.249	6.258	6.255	6.262
33	6.258	6.261	6.256	6.259	6.266	6.265	6.273
34	6.213	6.221	6.209	6.224	6.221	6.217	6.222
35	6.255	6.264	6.255	6.258	6.258	6.263	6.270
36	6.277	6.277	6.272	6.278	6.278	6.273	6.282
37	6.250	6.258	6.247	6.256	6.256	6.253	6.256
38	6.313	6.307	6.310	6.319	6.314	6.312	6.321
39	6.310	6.306	6.305	6.312	6.308	6.313	6.322
40	6.273	6.279	6.273	6.282	6.279	6.275	6.278
41	6.275	6.279	6.274	6.282	6.276	6.283	6.289
42	6.286	6.285	6.280	6.288	6.284	6.285	6.290
43	6.278	6.279	6.274	6.274	6.278	6.275	6.277
44	6.272	6.271	6.271	6.271	6.281	6.277	6.282
45	6.266	6.271	6.267	6.267	6.273	6.276	6.282
46	6.267	6.258	6.267	6.276	6.272	6.273	6.278
47	6.288	6.283	6.284	6.292	6.291	6.288	6.293
48	6.286	6.300	6.286	6.289	6.292	6.295	6.301
49	6.204	6.263	6.199	6.227	6.222	6.218	6.225
50	6.310	6.308	6.307	6.314	6.307	6.310	6.319
Avg.	6.275	6.279	6.257	6.278	6.278	6.278	6.283
Med.	6.277	6.279	6.298	6.278	6.279	6.276	6.282
st dev	0.028	0.022	6.304	0.025	0.024	0.026	0.026
Min.	6.204	6.221	6.282	6.224	6.221	6.217	6.222
Max.	6.317	6.320	6.318	6.319	6.316	6.316	6.322

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

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2617	0.5285	2713	0.0001	0.0006	0.0009	0.0009	0.0011	0.0011
27	0.2615	0.5275	2720	0.0003	0.0004	0.0005	0.0006	0.0009	0.0011
28	0.2613	0.5281	2722	0.0001	0.0004	0.0006	0.0007	0.0008	0.0009
29	0.2612	0.5272	2727	0.0002	0.0004	0.0008	0.0009	0.0009	0.0009
30	0.2667	0.5267	2617	0.0005	0.0007	0.0009	0.0011	0.0011	0.0011
31	0.2607	0.5274	2738	0.0002	0.0003	0.0007	0.0009	0.0011	0.0011
32	0.2648	0.5258	2658	0.0001	0.0005	0.0007	0.0009	0.0010	0.0012
33	0.2613	0.5275	2724	0.0002	0.0004	0.0006	0.0007	0.0009	0.0009
34	0.2645	0.5268	2661	0.0004	0.0004	0.0008	0.0009	0.0011	0.0012
35	0.2674	0.5259	2606	0.0001	0.0004	0.0007	0.0009	0.0009	0.0011
36	0.2606	0.5260	2745	0.0003	0.0005	0.0008	0.0008	0.0009	0.0010
37	0.2661	0.5266	2630	0.0002	0.0004	0.0007	0.0009	0.0009	0.0010
38	0.2607	0.5269	2739	0.0001	0.0003	0.0007	0.0008	0.0010	0.0012
39	0.2610	0.5272	2732	0.0002	0.0004	0.0008	0.0009	0.0011	0.0013
40	0.2613	0.5273	2725	0.0003	0.0004	0.0007	0.0009	0.0009	0.0010
41	0.2611	0.5274	2729	0.0001	0.0005	0.0006	0.0008	0.0009	0.0010
42	0.2619	0.5273	2713	0.0002	0.0004	0.0008	0.0009	0.0010	0.0011
43	0.2597	0.5274	2758	0.0003	0.0003	0.0007	0.0009	0.0010	0.0012
44	0.2631	0.5275	2688	0.0001	0.0005	0.0006	0.0009	0.0011	0.0012
45	0.2613	0.5264	2728	0.0002	0.0004	0.0008	0.0009	0.0010	0.0014
46	0.2617	0.5276	2716	0.0004	0.0004	0.0007	0.0008	0.0009	0.0013
47	0.2614	0.5270	2724	0.0006	0.0004	0.0008	0.0009	0.0009	0.0011
48	0.2623	0.5278	2703	0.0006	0.0006	0.0008	0.0009	0.0009	0.0012
49	0.2654	0.5264	2643	0.0005	0.0004	0.0006	0.0007	0.0008	0.0013
50	0.2601	0.5265	2754	0.0004	0.0003	0.0006	0.0008	0.0008	0.0012
Avg.	0.2624	0.5271	2705	0.0003	0.0004	0.0007	0.0009	0.0010	0.0011
Med.	0.2614	0.5272	2722	0.0002	0.0004	0.0007	0.0009	0.0009	0.0011
st dev	0.0022	0.0007	43	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2597	0.5258	2606	0.0001	0.0003	0.0005	0.0006	0.0008	0.0009
Max.	0.2674	0.5285	2758	0.0006	0.0007	0.0009	0.0011	0.0011	0.0014

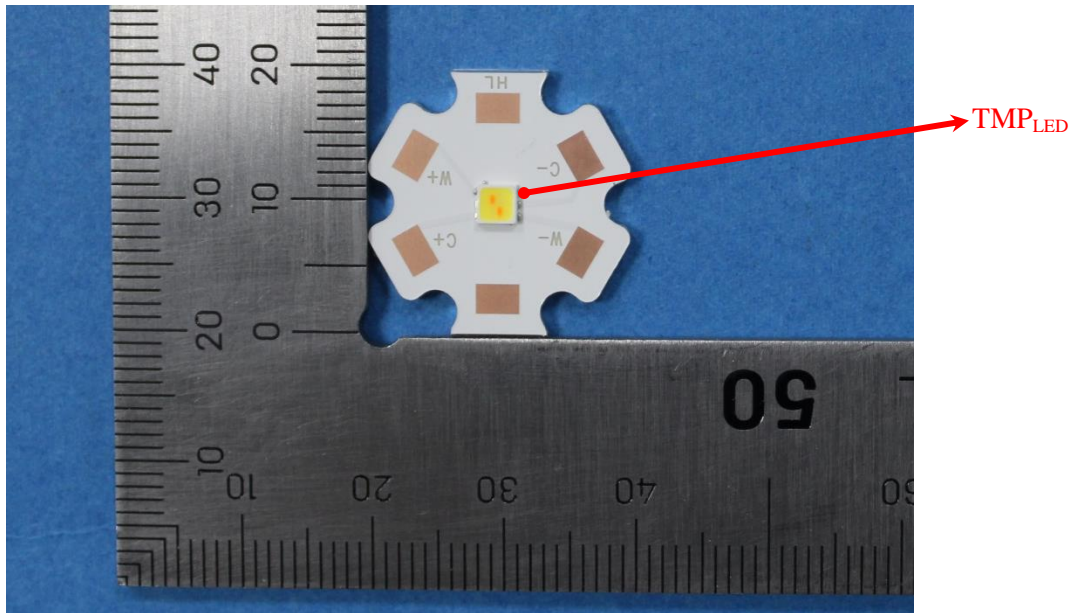
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $K=2$ with the 95% confidence interval.
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*****END OF REPORT*****