中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF18F01100758N
Applicant	:	Guangzhou Tianxin photoelectric Co., Ltd.
Address.	:	Flower Valley Road East Town, Huadu District of Guangzhou City No. 15 of.
Manufacturer.	:	Guangzhou Tianxin photoelectric Co., Ltd.
Address.	:	Flower Valley Road East Town, Huadu District of Guangzhou City No. 15 of.
Product Name	:	smart single color bulb
Model No.	:	TX-3535RGBW
Ratings	:	11VDC, 350mA
Standards	:	IES LM-80-08 Approved Method：Measuring Lumen Maintenance of LED Light Source
Date of Receipt sample	:	2018-01-16
Date of Test	:	2018-01-16 to 2018-11-20
Date of Issue	:	2018-11-21
Test Report Form No.	:	WPL-LM8008A-02A
Test Result	:	See the attached sheets

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Services (Foshan) Co., Ltd.
Address: No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China
Tel :+86-757-23811398
Fax:+86-757-23811381

Compiled by:

Finn Yu / Project Engineer

Approved by:

Akin Xu / Manager

1. Description of Test Samples

Classification: SMD 3535
Product Name: smart single color bulb
Model Number: TX-3535RGBW
Nominal CCT: N/A (RGBW)

2. Standards Used:

- IESNA LM-80-08: IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products(This test method was not accredited by CNAS)

3. Operating Cycle

The testing facility used by Waltek Services (Foshan) Co., Ltd. is located at No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China

4. Operating Cycle

Samples are driven with a constant direct current (DC)

5. Ambient Conditions

For lumen maintenance test, samples were operated in thermal chambers with minimal ambient airflow. For long term reliability test, the case temperature was controlled by mounting several thermocouples on a sample reliability stress board at the designated thermal measurement point, as shown in Attachment. The ambient temperature T_A was measured by several thermocouples at a distance of 5 mm above the reliability test board. The relative humidity within chamber was less than 65%.

For photometry measurement, temperature was set to 25°C ± 2°C, RH <65%.

6. Photometry Measurement Uncertainty

The uncertainty of the light output measurements is U=1.8% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=20K (K=2), at the 95% confidence level. This calibration results traceable to the Guangzhou Institute of Measurement and Testing Technology.

7. Sample Set

Model Number:	TX-3535RGBW
Number of Units:	25
Actual Case Temperature(T_S):	T_S =55.1°C
Actual Ambient Temperature(T_A):	T_A =53.6°C
Life Test Drive Current:	I_F = 350mA
Measurement Current:	I_F = 350mA

Model Number:	TX-3535RGBW
Number of Units:	25
Actual Case Temperature(T_S):	T_S =85.0°C
Actual Ambient Temperature(T_A):	T_A =84.1°C
Life Test Drive Current:	I_F = 350mA
Measurement Current:	I_F = 350mA

Model Number:	TX-3535RGBW
Number of Units:	25
Actual Case Temperature(T_S):	T_S =104.2°C
Actual Ambient Temperature(T_A):	T_A =103.5°C
Life Test Drive Current:	I_F = 350mA
Measurement Current:	I_F = 350mA

8. SUMMARY OF TEST RESULT

Data Set:	Data Set 1, 55°C, 350mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	97.14%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0049
Calculated TM-21 L 70 Lifetime:	76000 hours
Reported TM-21 L 70 Lifetime:	>36000 hours

Data Set:	Data Set 2, 85°C, 350mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	96.18%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0057
Calculated TM-21 L 70 Lifetime:	56000 hours
Reported TM-21 L 70 Lifetime:	>36000 hours

Data Set:	Data Set 3, 105°C, 350mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	94.71%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0068
Calculated TM-21 L 70 Lifetime:	40000 hours
Reported TM-21 L 70 Lifetime:	>36000 hours

Data sheet 1:

Driver current	**350mA**	**Target Case temperature**	**55°C**
Measurement current	**350mA**	**Actual case temperature**	**55.1°C**

Lumen Maintenance:

S/N	VF(V)	TLF(lm)	Lumen Maintenance (%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
A01	11.19	220.58	99.67	99.41	98.88	98.40	97.98	97.30
A02	11.06	232.68	99.25	98.99	98.47	98.00	97.58	96.91
A03	11.06	213.14	99.79	99.54	99.01	98.54	98.12	97.45
A04	11.16	236.01	99.89	99.64	99.12	98.64	98.23	97.56
A05	11.07	228.32	99.05	98.79	98.26	97.78	97.37	96.69
A06	11.24	222.57	99.59	99.33	98.80	98.32	97.91	97.23
A07	11.07	192.64	99.69	99.43	98.91	98.43	98.01	97.34
A08	11.17	217.01	99.27	99.01	98.50	98.03	97.62	96.95
A09	11.15	223.66	99.81	99.56	99.04	98.57	98.16	97.49
A10	11.41	232.31	98.97	98.71	98.19	97.71	97.30	96.62
A11	11.01	223.96	99.07	98.82	98.29	97.82	97.41	96.74
A12	11.06	214.90	99.62	99.36	98.84	98.36	97.94	97.27
A13	11.24	227.11	99.72	99.46	98.94	98.47	98.05	97.38
A14	11.15	226.12	99.29	99.04	98.53	98.06	97.66	97.00
A15	11.18	220.37	99.40	99.15	98.64	98.17	97.77	97.11
A16	11.20	228.64	99.50	99.25	98.74	98.28	97.88	97.22
A17	11.10	229.22	100.05	99.80	99.28	98.82	98.42	97.76
A18	11.03	229.29	99.62	99.38	98.87	98.42	98.02	97.37
A19	11.05	225.69	99.72	99.48	98.98	98.52	98.13	97.48
A20	11.12	219.09	99.30	99.06	98.57	98.12	97.73	97.09
A21	11.17	209.44	99.42	99.17	98.66	98.20	97.80	97.15
A22	11.19	217.13	99.00	98.76	98.26	97.80	97.41	96.76
A23	11.12	221.65	99.54	99.30	98.80	98.34	97.94	97.30
A24	11.05	227.52	99.12	98.88	98.39	97.94	97.55	96.91
A25	11.06	192.11	98.70	98.47	97.98	97.54	97.16	96.52
Avg	**11.13**	**221.25**	**99.44**	**99.19**	**98.68**	**98.21**	**97.81**	**97.14**
Max	**11.41**	**236.01**	**100.05**	**99.80**	**99.28**	**98.82**	**98.42**	**97.76**
Min	**11.01**	**192.11**	**98.70**	**98.47**	**97.98**	**97.54**	**97.16**	**96.52**
Med	**11.12**	**223.66**	**99.50**	**99.25**	**98.74**	**98.28**	**97.88**	**97.22**
Std. dev	**0.09**	**10.78**	**0.33**	**0.33**	**0.33**	**0.32**	**0.32**	**0.32**

TM-21 Projection:

Test Duration	6000h
Failures Observed	0
α	4.680E-06
β	1.000
Calculated L_{70}	76000
Reported L_{70}	>36000

Chromaticity Shift(Δu'v'):

S/N	Initial(0hr)			1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'	CCT (K)						
A01	0.2028	0.3883	100000	0.0037	0.0039	0.0041	0.0044	0.0047	0.0050
A02	0.2030	0.3900	100000	0.0039	0.0041	0.0044	0.0046	0.0049	0.0052
A03	0.1974	0.3795	100000	0.0037	0.0040	0.0042	0.0045	0.0048	0.0051
A04	0.2051	0.3882	100000	0.0036	0.0038	0.0040	0.0043	0.0046	0.0049
A05	0.1988	0.3890	100000	0.0037	0.0040	0.0043	0.0046	0.0050	0.0055
A06	0.2021	0.3896	100000	0.0035	0.0038	0.0041	0.0044	0.0048	0.0052
A07	0.1979	0.3605	100000	0.0034	0.0036	0.0039	0.0043	0.0048	0.0054
A08	0.2013	0.3875	100000	0.0032	0.0035	0.0038	0.0041	0.0046	0.0051
A09	0.2017	0.3849	100000	0.0030	0.0032	0.0036	0.0040	0.0045	0.0052
A10	0.2024	0.3869	100000	0.0029	0.0031	0.0034	0.0039	0.0043	0.0049
A11	0.2033	0.3828	100000	0.0028	0.0030	0.0034	0.0038	0.0042	0.0048
A12	0.1970	0.3796	100000	0.0030	0.0033	0.0036	0.0040	0.0044	0.0050
A13	0.1999	0.3873	100000	0.0027	0.0030	0.0034	0.0039	0.0044	0.0051
A14	0.2019	0.3921	73000	0.0025	0.0027	0.0031	0.0035	0.0039	0.0046
A15	0.2009	0.3872	100000	0.0024	0.0027	0.0030	0.0034	0.0039	0.0045
A16	0.1986	0.3869	100000	0.0024	0.0026	0.0029	0.0033	0.0037	0.0043
A17	0.2026	0.3870	100000	0.0023	0.0025	0.0029	0.0034	0.0039	0.0047
A18	0.2017	0.3895	100000	0.0022	0.0025	0.0029	0.0033	0.0038	0.0045
A19	0.1978	0.3887	100000	0.0020	0.0022	0.0026	0.0030	0.0034	0.0041
A20	0.1999	0.3839	100000	0.0020	0.0022	0.0025	0.0029	0.0033	0.0039
A21	0.1990	0.3817	100000	0.0017	0.0019	0.0023	0.0027	0.0031	0.0038
A22	0.2000	0.3886	100000	0.0027	0.0029	0.0033	0.0037	0.0041	0.0047
A23	0.1991	0.3866	100000	0.0029	0.0031	0.0035	0.0039	0.0044	0.0051
A24	0.2046	0.3836	100000	0.0038	0.0040	0.0044	0.0048	0.0052	0.0059
A25	0.1974	0.3607	100000	0.0035	0.0037	0.0042	0.0046	0.0051	0.0058
Avg	**0.2006**	**0.3844**	**98920**	**0.0029**	**0.0032**	**0.0035**	**0.0039**	**0.0043**	**0.0049**
Max	**0.2051**	**0.3921**	**100000**	**0.0039**	**0.0041**	**0.0044**	**0.0048**	**0.0052**	**0.0059**
Min	**0.1970**	**0.3605**	**73000**	**0.0017**	**0.0019**	**0.0023**	**0.0027**	**0.0031**	**0.0038**
Med	**0.2009**	**0.3870**	**100000**	**0.0029**	**0.0031**	**0.0035**	**0.0039**	**0.0044**	**0.0050**
Std. dev	**0.0023**	**0.0078**	**5400**	**0.0006**	**0.0007**	**0.0006**	**0.0006**	**0.0006**	**0.0005**

Data sheet 2:

Driver current	**350mA**	**Target Case temperature**	**85°C**
Measurement current	**350mA**	**Actual case temperature**	**85.0°C**

Lumen Maintenance:

S/N	VF(V)	TLF(lm)	Lumen Maintenance (%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
B01	11.07	220.52	99.47	99.09	98.38	97.69	97.01	96.39
B02	11.02	207.01	99.05	98.68	97.98	97.29	96.62	96.00
B03	11.17	220.08	99.15	98.78	98.09	97.40	96.74	96.12
B04	11.07	226.94	99.26	98.89	98.19	97.51	96.85	96.24
B05	11.10	219.78	98.85	98.47	97.77	97.08	96.41	95.79
B06	10.99	206.38	99.40	99.02	98.31	97.61	96.94	96.32
B07	11.11	218.67	99.50	99.12	98.42	97.72	97.05	96.43
B08	11.04	228.68	98.64	98.27	97.58	96.90	96.25	95.64
B09	11.07	217.53	99.18	98.81	98.12	97.44	96.78	96.17
B10	11.47	228.87	98.77	98.40	97.70	97.00	96.34	95.72
B11	11.06	213.81	98.88	98.50	97.81	97.12	96.45	95.84
B12	11.22	219.24	99.42	99.05	98.35	97.65	96.99	96.36
B13	11.00	223.26	99.52	99.15	98.45	97.76	97.10	96.48
B14	11.04	218.52	99.10	98.73	98.04	97.36	96.71	96.10
B15	10.97	199.08	99.20	98.84	98.15	97.47	96.82	96.22
B16	11.25	185.69	99.31	98.94	98.26	97.59	96.94	96.33
B17	11.15	219.67	99.85	99.49	98.80	98.12	97.47	96.87
B18	11.11	218.71	99.43	99.07	98.39	97.72	97.08	96.48
B19	11.02	232.65	99.53	99.17	98.50	97.83	97.19	96.60
B20	11.24	224.16	99.11	98.76	98.09	97.43	96.80	96.21
B21	10.99	217.79	99.23	98.87	98.18	97.51	96.86	96.26
B22	11.27	229.30	98.81	98.45	97.78	97.11	96.48	95.88
B23	11.36	227.27	99.35	98.99	98.32	97.65	97.01	96.41
B24	11.07	226.07	98.93	98.58	97.91	97.25	96.62	96.03
B25	10.99	222.94	98.51	98.17	97.51	96.85	96.23	95.65
Avg	**11.11**	**218.90**	**99.18**	**98.81**	**98.12**	**97.44**	**96.79**	**96.18**
Max	**11.47**	**232.65**	**99.85**	**99.49**	**98.80**	**98.12**	**97.47**	**96.87**
Min	**10.97**	**185.69**	**98.51**	**98.17**	**97.51**	**96.85**	**96.23**	**95.64**
Med	**11.07**	**219.78**	**99.20**	**98.84**	**98.15**	**97.47**	**96.82**	**96.22**
Std. dev	**0.13**	**10.35**	**0.32**	**0.32**	**0.31**	**0.31**	**0.31**	**0.31**

TM-21 Projection:

Test Duration	6000h
Failures Observed	0
α	6.357E-06
β	0.999
Calculated L_{70}	56,000
Reported L_{70}	>36000

Chromaticity Shift(Δu'v'):									
S/N	Initial(0hr)			1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'	CCT (K)						
B01	0.2018	0.3806	100000	0.0047	0.0049	0.0052	0.0055	0.0058	0.0061
B02	0.1980	0.3811	100000	0.0044	0.0047	0.0049	0.0052	0.0055	0.0058
B03	0.1972	0.3858	100000	0.0046	0.0049	0.0052	0.0055	0.0058	0.0062
B04	0.2017	0.3866	100000	0.0044	0.0047	0.0050	0.0052	0.0055	0.0059
B05	0.1984	0.3863	100000	0.0040	0.0043	0.0047	0.0050	0.0054	0.0059
B06	0.1977	0.3810	100000	0.0037	0.0040	0.0043	0.0046	0.0049	0.0053
B07	0.1966	0.3855	100000	0.0035	0.0038	0.0041	0.0045	0.0048	0.0052
B08	0.1972	0.3884	100000	0.0044	0.0047	0.0050	0.0053	0.0056	0.0060
B09	0.1992	0.3836	100000	0.0040	0.0043	0.0047	0.0051	0.0054	0.0060
B10	0.2010	0.3862	100000	0.0038	0.0041	0.0045	0.0048	0.0052	0.0057
B11	0.1964	0.3792	100000	0.0036	0.0040	0.0043	0.0047	0.0050	0.0055
B12	0.1991	0.3882	100000	0.0035	0.0038	0.0041	0.0045	0.0048	0.0053
B13	0.2030	0.3826	100000	0.0034	0.0040	0.0044	0.0048	0.0052	0.0063
B14	0.2010	0.3801	100000	0.0033	0.0038	0.0042	0.0046	0.0050	0.0060
B15	0.1969	0.3709	100000	0.0029	0.0035	0.0038	0.0042	0.0046	0.0055
B16	0.1858	0.3628	100000	0.0028	0.0033	0.0037	0.0041	0.0044	0.0052
B17	0.2005	0.3871	100000	0.0026	0.0031	0.0035	0.0039	0.0043	0.0053
B18	0.1980	0.3861	100000	0.0031	0.0036	0.0040	0.0044	0.0047	0.0056
B19	0.2012	0.3894	100000	0.0030	0.0035	0.0039	0.0043	0.0047	0.0055
B20	0.2010	0.3917	85080	0.0029	0.0034	0.0037	0.0041	0.0045	0.0052
B21	0.1985	0.3814	100000	0.0027	0.0031	0.0036	0.0040	0.0044	0.0053
B22	0.1988	0.3870	100000	0.0027	0.0032	0.0036	0.0041	0.0045	0.0053
B23	0.2003	0.3858	100000	0.0027	0.0031	0.0036	0.0040	0.0044	0.0052
B24	0.2014	0.3865	100000	0.0036	0.0040	0.0044	0.0049	0.0052	0.0060
B25	0.2029	0.3825	100000	0.0033	0.0037	0.0042	0.0047	0.0051	0.0060
Avg	**0.1989**	**0.3835**	**99403**	**0.0035**	**0.0039**	**0.0043**	**0.0046**	**0.0050**	**0.0057**
Max	**0.2030**	**0.3917**	**100000**	**0.0047**	**0.0049**	**0.0052**	**0.0055**	**0.0058**	**0.0063**
Min	**0.1858**	**0.3628**	**85080**	**0.0026**	**0.0031**	**0.0035**	**0.0039**	**0.0043**	**0.0052**
Med	**0.1991**	**0.3858**	**100000**	**0.0035**	**0.0038**	**0.0042**	**0.0046**	**0.0050**	**0.0056**
Std. dev	**0.0034**	**0.0060**	**2984**	**0.0007**	**0.0006**	**0.0005**	**0.0005**	**0.0005**	**0.0004**

Data sheet 3:

Driver current	**350mA**	**Target Case temperature**	**105°C**
Measurement current	**350mA**	**Actual case temperature**	**104.2°C**

Lumen Maintenance:

S/N	VF(V)	TLF(lm)	Lumen Maintenance (%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
C01	11.35	226.54	99.23	97.74	96.60	95.66	95.17	94.84
C02	11.08	219.09	98.80	97.33	96.20	95.27	94.79	94.47
C03	11.30	185.26	99.35	97.87	96.74	95.80	95.31	94.99
C04	11.05	195.86	99.45	97.98	96.85	95.92	95.43	95.11
C05	11.03	228.62	98.61	97.13	96.00	95.07	94.58	94.25
C06	11.02	217.61	99.15	97.67	96.53	95.59	95.10	94.77
C07	11.33	218.26	98.73	97.26	96.13	95.20	94.72	94.40
C08	11.01	232.16	98.83	97.37	96.25	95.32	94.84	94.52
C09	11.01	218.15	99.37	97.90	96.78	95.85	95.36	95.04
C10	11.31	230.97	98.53	97.06	95.93	95.00	94.51	94.19
C11	11.05	195.78	98.64	97.17	96.05	95.12	94.64	94.31
C12	11.11	218.56	99.18	97.71	96.58	95.65	95.16	94.83
C13	11.11	223.52	99.28	97.82	96.69	95.77	95.28	94.96
C14	10.97	206.05	98.86	97.41	96.30	95.38	94.90	94.58
C15	11.22	182.65	98.96	97.52	96.41	95.50	95.02	94.71
C16	11.00	218.34	99.07	97.63	96.53	95.62	95.15	94.83
C17	10.95	195.36	99.61	98.17	97.06	96.15	95.67	95.36
C18	11.06	217.11	99.19	97.76	96.66	95.76	95.29	94.98
C19	11.02	217.37	99.29	97.87	96.78	95.88	95.41	95.10
C20	11.24	185.85	98.87	97.46	96.38	95.49	95.03	94.73
C21	11.03	221.72	98.99	97.56	96.46	95.55	95.08	94.76
C22	11.10	223.17	98.57	97.15	96.06	95.16	94.70	94.39
C23	10.93	193.41	99.11	97.68	96.59	95.69	95.22	94.91
C24	11.25	234.77	98.69	97.27	96.19	95.30	94.84	94.54
C25	11.01	219.18	98.27	96.87	95.80	94.91	94.46	94.16
Avg	**11.10**	**213.01**	**98.99**	**97.53**	**96.42**	**95.50**	**95.03**	**94.71**
Max	**11.35**	**234.77**	**99.61**	**98.17**	**97.06**	**96.15**	**95.67**	**95.36**
Min	**10.93**	**182.65**	**98.27**	**96.87**	**95.80**	**94.91**	**94.46**	**94.16**
Med	**11.05**	**218.26**	**98.99**	**97.56**	**96.46**	**95.55**	**95.08**	**94.76**
Std. dev	**0.13**	**15.66**	**0.33**	**0.33**	**0.32**	**0.32**	**0.32**	**0.32**

TM-21 Projection:

Test Duration	6000h
Failures Observed	0
α	8.814E-06
β	0.994
Calculated L_{70}	40,000
Reported L_{70}	>36000

Chromaticity Shift(Δu'v'):									
S/N	Initial(0hr)			1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'	CCT (K)						
C01	0.2001	0.3857	100000	0.0060	0.0063	0.0066	0.0070	0.0073	0.0077
C02	0.1998	0.3806	100000	0.0056	0.0059	0.0062	0.0066	0.0069	0.0073
C03	0.1856	0.3627	100000	0.0058	0.0062	0.0065	0.0068	0.0072	0.0076
C04	0.1971	0.3608	100000	0.0055	0.0058	0.0061	0.0065	0.0068	0.0072
C05	0.1971	0.3884	100000	0.0050	0.0054	0.0058	0.0062	0.0067	0.0072
C06	0.2006	0.3799	100000	0.0046	0.0049	0.0053	0.0057	0.0061	0.0066
C07	0.1986	0.3880	100000	0.0045	0.0048	0.0052	0.0055	0.0059	0.0065
C08	0.2010	0.3893	100000	0.0053	0.0056	0.0059	0.0062	0.0066	0.0071
C09	0.1964	0.3854	100000	0.0048	0.0051	0.0056	0.0060	0.0065	0.0071
C10	0.1995	0.3873	100000	0.0046	0.0049	0.0053	0.0057	0.0061	0.0067
C11	0.1970	0.3609	100000	0.0043	0.0046	0.0050	0.0054	0.0059	0.0064
C12	0.1979	0.3861	100000	0.0041	0.0044	0.0048	0.0052	0.0056	0.0061
C13	0.2007	0.3916	89320	0.0038	0.0041	0.0045	0.0050	0.0055	0.0062
C14	0.1976	0.3809	100000	0.0046	0.0049	0.0053	0.0058	0.0062	0.0069
C15	0.1861	0.3630	100000	0.0048	0.0051	0.0056	0.0060	0.0072	0.0072
C16	0.1987	0.3814	100000	0.0046	0.0049	0.0053	0.0057	0.0068	0.0068
C17	0.1954	0.3699	100000	0.0039	0.0042	0.0047	0.0052	0.0062	0.0064
C18	0.1990	0.3835	100000	0.0037	0.0040	0.0044	0.0049	0.0059	0.0061
C19	0.2005	0.3799	100000	0.0045	0.0048	0.0053	0.0057	0.0066	0.0068
C20	0.1876	0.3640	100000	0.0043	0.0046	0.0050	0.0054	0.0063	0.0065
C21	0.2000	0.3820	100000	0.0039	0.0043	0.0047	0.0052	0.0062	0.0065
C22	0.2006	0.3915	93840	0.0040	0.0043	0.0048	0.0053	0.0062	0.0066
C23	0.1945	0.3693	100000	0.0038	0.0041	0.0046	0.0051	0.0059	0.0063
C24	0.2009	0.3880	100000	0.0049	0.0049	0.0054	0.0058	0.0066	0.0069
C25	0.1991	0.3816	100000	0.0045	0.0046	0.0051	0.0056	0.0065	0.0070
Avg	**0.1973**	**0.3793**	**99326**	**0.0046**	**0.0049**	**0.0053**	**0.0057**	**0.0064**	**0.0068**
Max	**0.2010**	**0.3916**	**100000**	**0.0060**	**0.0063**	**0.0066**	**0.0070**	**0.0073**	**0.0077**
Min	**0.1856**	**0.3608**	**89320**	**0.0037**	**0.0040**	**0.0044**	**0.0049**	**0.0055**	**0.0061**
Med	**0.1987**	**0.3816**	**100000**	**0.0046**	**0.0049**	**0.0053**	**0.0057**	**0.0063**	**0.0068**
Std. dev	**0.0045**	**0.0102**	**2421**	**0.0006**	**0.0006**	**0.0006**	**0.0006**	**0.0005**	**0.0004**

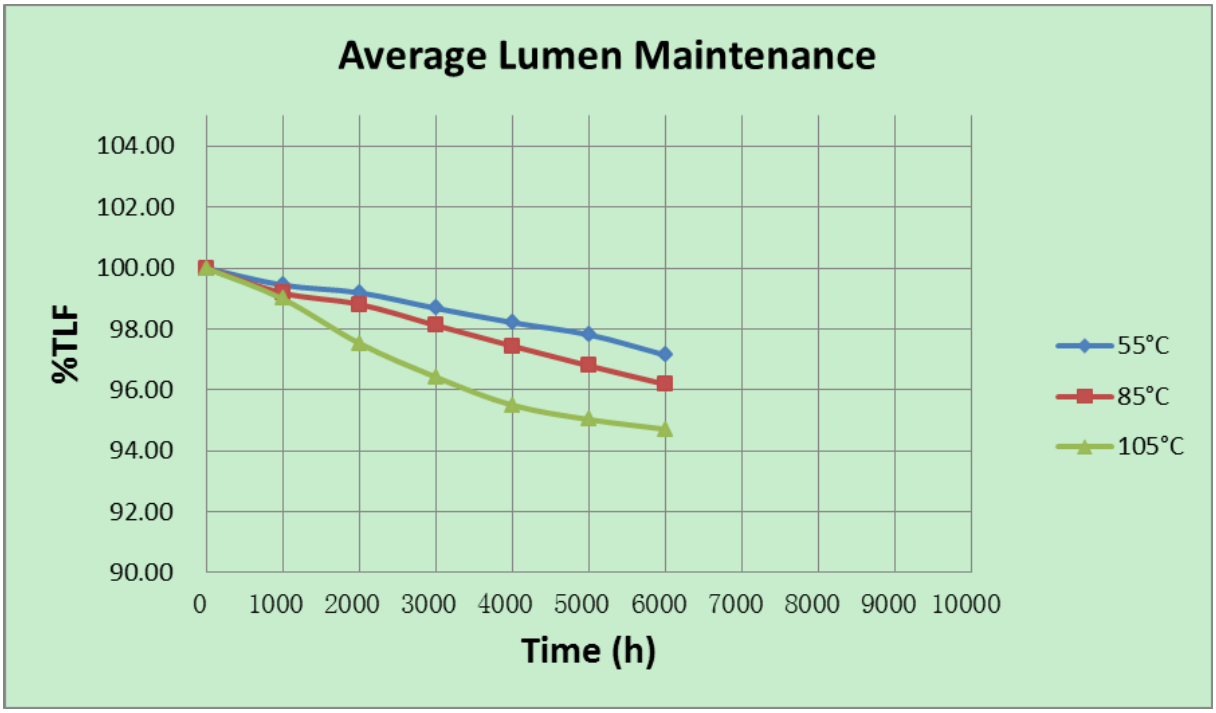
Test result:

Data Summary of Lumen and Color Maintenance:

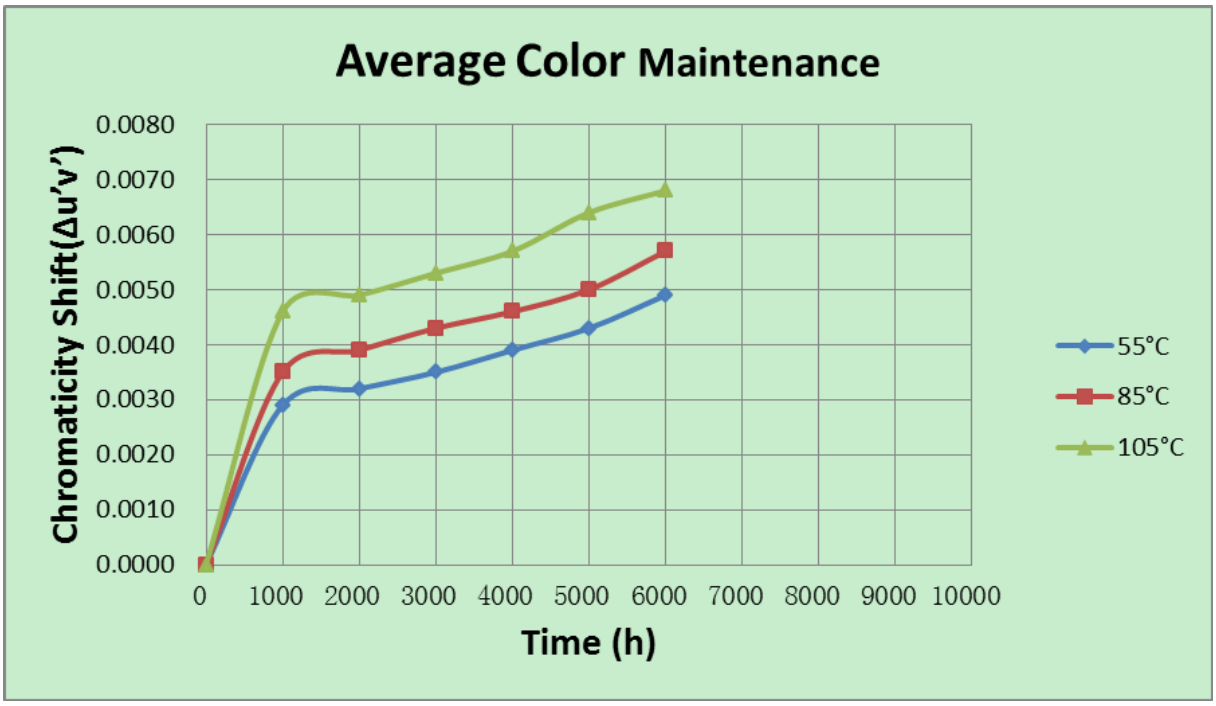
Temp.	VF(V)	TLF(lm)	Luminous Maintenance (%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
55°C (Avg)	11.13	221.25	99.44	99.19	98.68	98.21	97.81	97.14
85°C (Avg)	11.11	218.90	99.18	98.81	98.12	97.44	96.79	96.18
105°C (Avg)	11.10	213.01	98.99	97.53	96.42	95.50	95.03	94.71

Temp.	CIEu'	CIEv'	CCT	Chromaticity Shift (Δ u'v')					
	Initial(0hr)			1000h	2000h	3000h	4000h	5000h	6000h
55°C (Avg)	0.2006	0.3844	98920	0.0029	0.0032	0.0035	0.0039	0.0043	0.0049
85°C (Avg)	0.1989	0.3835	99403	0.0035	0.0039	0.0043	0.0046	0.0050	0.0057
105°C (Avg)	0.1973	0.3793	99326	0.0046	0.0049	0.0053	0.0057	0.0064	0.0068

Average Lumen Maintenance diagram



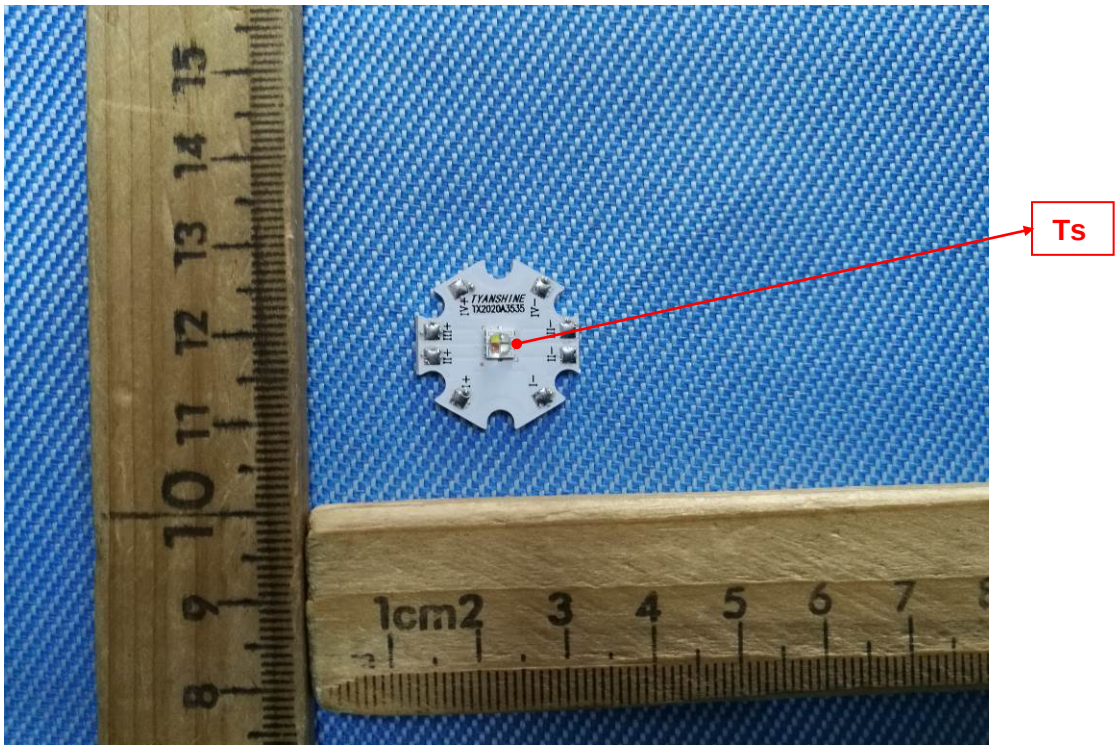
Average Color Maintenance diagram



Attachment 1: Equipment List

Equipment	Model	Calibration due date
The LED accelerated aging and longevity test system	EVERFINE LT-200A	2019-03-07
Temperature & Humidity Datalogger	Testo 608-H1	2019-03-07
High accuracy array spectroradio meter	EVERFINE HAAS-2000-VIS-V1	2019-03-07
Standard light source	EVERFINE D204	2019-03-07
DC power supply	EVERFINE WY12010	2019-03-07
Caliper	MITUTOYO CD-6”CS	2019-03-07

Attachment 2: Photo document



====== End of Report ======