

## LM-80 TEST REPORT



The following tested product(s) were submitted and identified by the vendor as:

Applicant : EVERLIGHT ELECTRONICS CO., LTD

Address of Applicant : No. 6-8, Zhonghua Rd., Shulin Dist., New Taipei City 23860, Taiwan

Testing Laboratory : Reliability Lab, Everlight Electronics

Testing Address : No.25, Lane 76, Sec. 3, Chung Yang Road, Tucheng, New Taipei City 23673, Taiwan

Product Name : Low-Mid Power LED

Model/ Serial Number : 67-21S Series (3000K)

Manufacturer : Everlight Electronics Co., LTD

Rating : DC 150 mA

Test Standard/Method : IES LM-80-08 Approved Method: Measuring Lumen Maintenance of LED Light Sources

Revision : 4

The submitted products have been tested as requested and the following results were obtained, and the report, not applicable for lawsuit, refers only to the unit(s) submitted for test.

Signed for and on behalf of  
EVERLIGHT Ltd.

*Luca Tai*

**1 DATE OF RECEIPT OF SAMPLES**

Apr. 22, 2014

**2 DATE(S) OF PERFORMANCE OF THE TEST**

Apr. 24, 2014 ~Feb. 26, 2015

**3 IDENTITY OF SAMPLES**

Quantity	Model	Serial Number
25	67-21S Series	# A01- # A25(55 °C)
25	67-21S Series	# B01- # B25(85 °C)
25	67-21S Series	# C01- # C25(105 °C)

**4 TEST ITEMS****4.1 Date Summary of Lumen and Color Maintenance**

Test results were concluded by different Temperatures (Ts)

**4.2 Lumen Maintenance and Color Maintenance Test**

Testing specifications by different case temperatures according to IES LM-80-08 approved.

Method: Measuring Lumen Maintenance of LED Light Sources and client's requirements were implemented per the following items.

**4.2.1 Total Luminous Flux( $\Phi_v$ )**

The test results of total luminous flux were implemented referring to Clause 2 PROPERTIES OF LEDS & Clause 6 MEASUREMENT OF LUMINOUS FLUX of CIE127:2007 2nd edition MRASUREMENT OF LEDS and IES LM-80-08 Approved Method: Measuring Lumen Maintenance of LED Light Sources, when the UUTs were powered with constant current of If.

**4.2.2 Correlated Color Temperature (CCT), CIE Color Coordinate (CIE<sub>x</sub>, CIE<sub>y</sub>) & Chromaticity shift( $\Delta u'$ ,  $\Delta v'$ )**

The test results of correlated color temperature were implemented referring to CIE 127:2007 2nd editions MRASUREMENT OF LEDS, CIE 15:2004 COLORIMETY.

The test results of color coordinate were implemented referring to CIE 127:2007 2<sup>nd</sup> edition MRASUREMENT OF LEDS, CIE 15:2004 COLORIMETRY

**5 TESTING LABORATORY IS ACCREDITED BY**

5.1 ISO 17025 accredited in respect of laboratory is approved by TAF Certificate No. : L2773-130705

5.2 EPA-Recognized Laboratories No.: 1125371

**6 TEST CONDITIONS**

6.1 Main Test Equipment:

Name	Brand	Model	Traceability	Calibration Date	Due Date
Spectroradiometer	Photal	LE-5400	NVLAP (200951-0)	2013/5/31	2016/5/31
Integrating Sphere	Labsphere	LMS-100CM			
Standard Light Source	Labsphere	SCL-1400			
Source Meter	Keithley	2612A	Chroma (TAF 0245)	2014/9/11	2015/9/11
Source Meter	Agilent	N5751A	宇正 (TAF 0742)	2015/2/25	2016/2/25
Digital Multimeter	Agilent	E3634A	ETC (TAF 0025)	2014/5/10	2015/5/10

6.2 Environmental Conditions:

Temperature: (25 ± 1) °C

Relative Humidity: < 65 %RH

6.3 Measurement Conditions:

Interval Time: 1000 h

Warm up Time: < 1 minute (initial)

Relative measurement uncertainty: 1.1 % (95 % Confidence Level)

6.4 UUT Conditions:

Drive Current: DC 150mA

Forward Voltage: 3V

Power Consumption: 0.5W (Rated Value)

Lumen: 50 lm – 60 lm

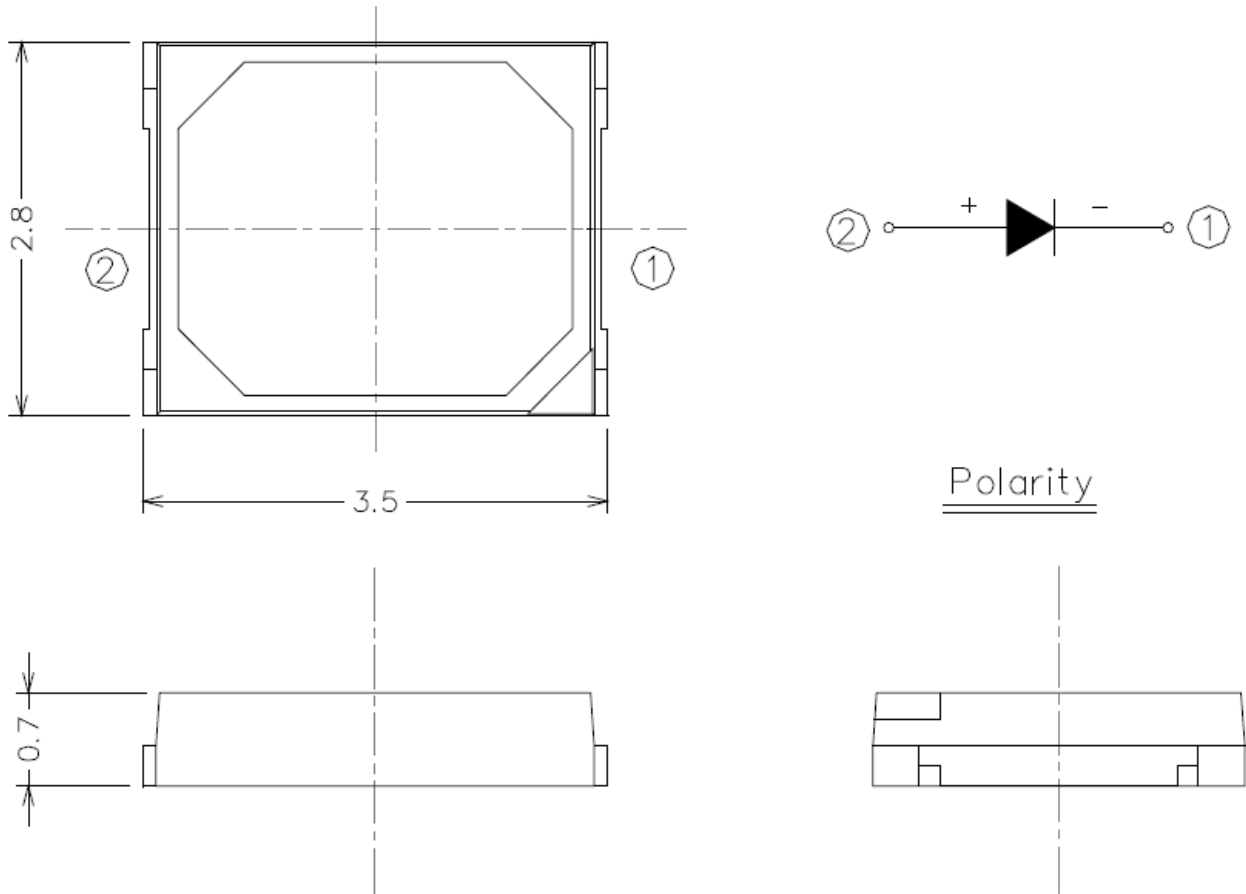
CCT: 3000K

Package Dimension: L 3.5 mm x W 2.8 mm

Prior operation: 0 h

Total Operation Duration: 6000 h

**6.5 Photograph of device**



**7 TEST SUMMARY:**

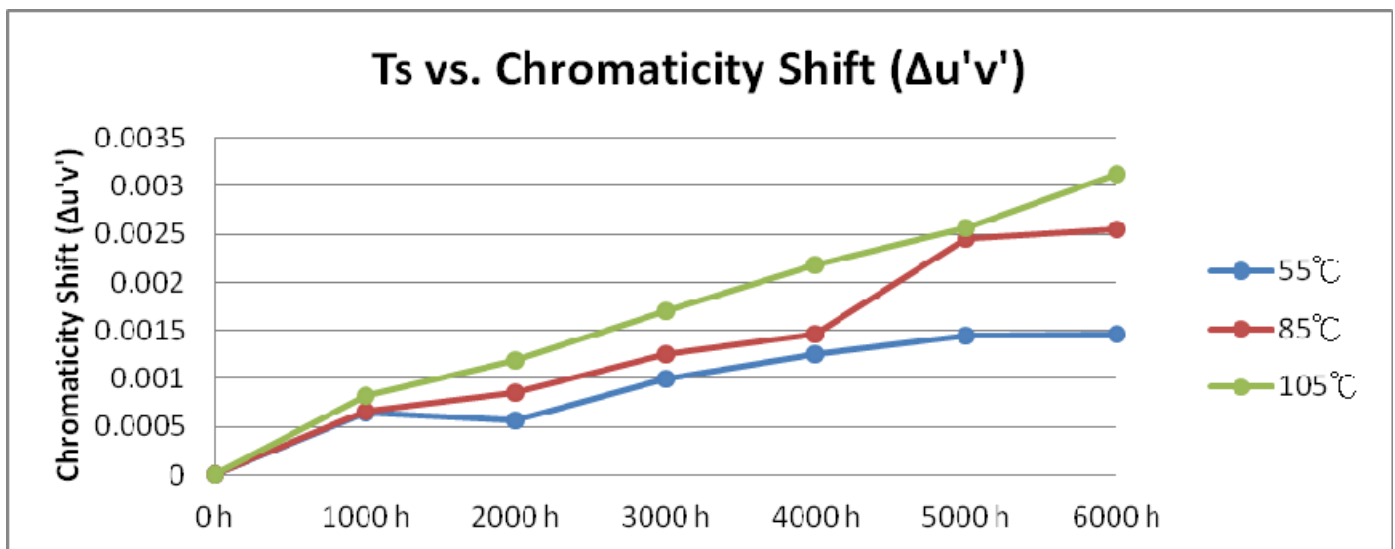
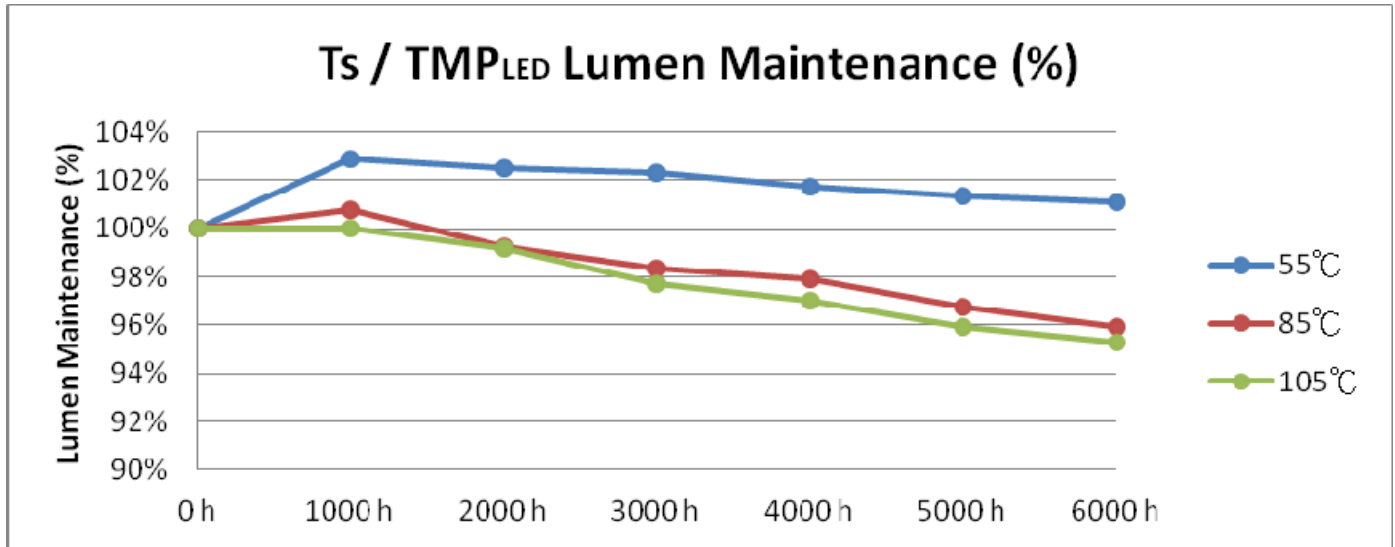
**7.1 Data Summary of Lumen and Color Maintenance**

Temp.	Initial( 0 h)		Luminous Maintenance (%)						
	TLF(lm)	Vf(V)	0 h	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
55 °C	50.7	3.4	100%	102.88%	102.50%	102.34%	101.76%	101.37%	101.13%
85 °C	50.7	3.4	100%	100.81%	99.26%	98.34%	97.89%	96.74%	95.91%
105 °C	51.1	3.4	100%	100.03%	99.20%	97.74%	96.99%	95.92%	95.31%

Temp.	Initial( 0 h)			Chromaticity Shift ( $\Delta u'v'$ )					
	CIE u'	CIE v'	CCT	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
55 °C	0.2494	0.5253	3009	0.00064	0.00057	0.00099	0.00126	0.00144	0.00147
85 °C	0.2491	0.5257	3014	0.00066	0.00085	0.00126	0.00146	0.00246	0.00255
105 °C	0.2497	0.5257	2999	0.00082	0.00119	0.00171	0.00219	0.00256	0.00312

7.2 Chart of lumen maintenance and TM-21 projection

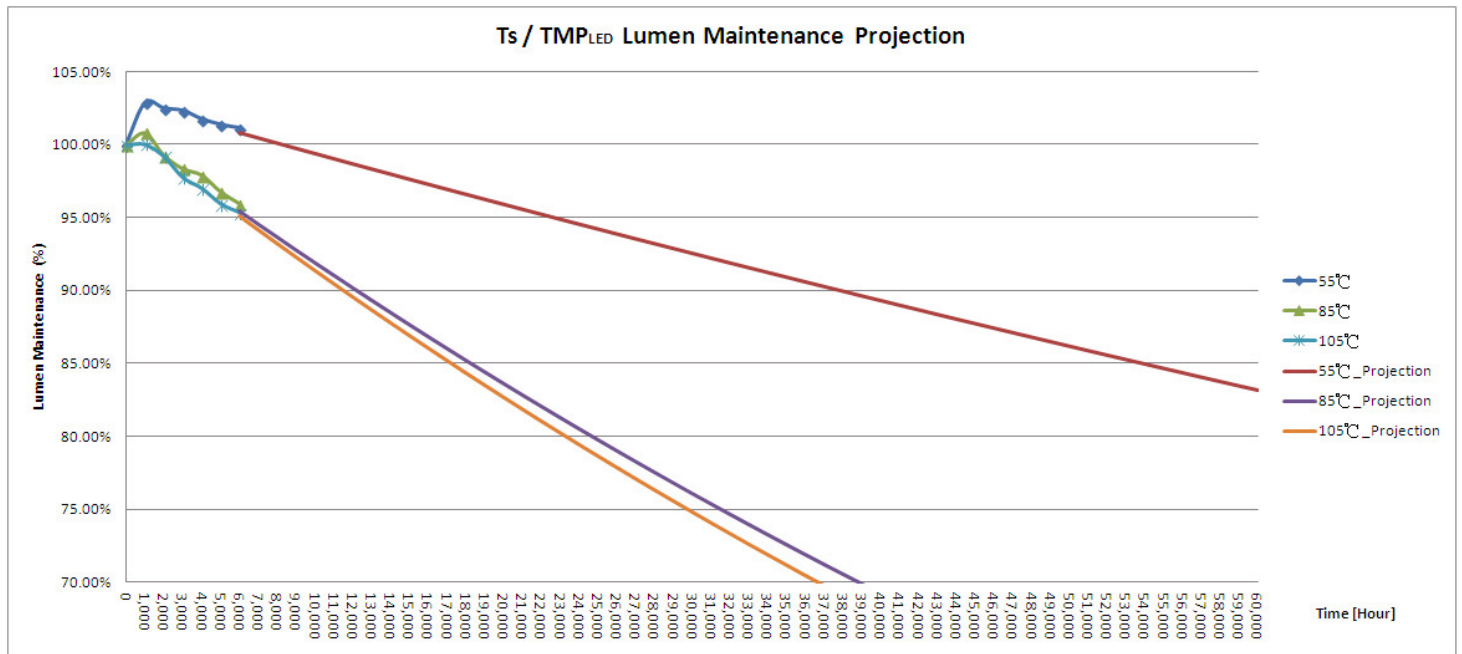
7.2.1 Chart of lumen maintenance



7.2.2 LM-80 test and TM-21 Projection

Table : Report at each LM-80 Test Condition

Case Temperature 1		Case Temperature 2		Case Temperature 3	
Temperature (°C):	55	Temperature (°C):	85	Temperature (°C):	105
Temperature (°K):	328.15	Temperature (°K):	358.15	Temperature (°K):	378.15
$\alpha$ :	3.56E-06	$\alpha$ :	9.45E-06	$\alpha$ :	1.00E-05
B:	1.03	B:	1.01	B:	1.01
Calculated L70 (hrs):	109000	Calculated L70 (hrs):	39000	Calculated L70 (hrs):	37000
Reported L70 (hrs):	>36000	Reported L70 (hrs):	>36000	Reported L70 (hrs):	>36000



7.3 Lumen Maintenance and Color Maintenance Test

7.3.1 Test Condition: Ts = 55 °C

Requirement	
Case Temperature [Ts]: 54.3 °C	Average [Ts]: 54.3 °C
Ambient Temperature [Ta]: 52.1 °C	Average [Ta]: 52.1 °C
Driver Current: 150 mA	Air Flow: Minimized
Measurement Current: 150 mA	Relative Humidity: < 65 %RH

7.3.1.1 Total Luminous Flux ( $\Phi_v$ )

S/N	Initial(0 h)		Luminous Maintenance( $\Phi_v$ )					
	TLF(lm)	Vf(V)	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
A01	51.2	3.4	102.23%	101.90%	100.43%	99.84%	99.16%	99.65%
A02	50.8	3.4	102.09%	101.99%	101.47%	100.93%	100.44%	101.02%
A03	51.7	3.5	102.15%	101.81%	101.23%	100.89%	100.15%	100.40%
A04	51.0	3.4	102.54%	102.88%	102.27%	101.10%	100.87%	100.90%
A05	49.7	3.4	103.12%	102.81%	102.26%	101.58%	100.80%	100.55%
A06	51.6	3.5	102.87%	102.44%	101.93%	101.36%	100.74%	100.63%
A07	51.0	3.4	103.25%	103.23%	102.57%	101.92%	101.51%	101.69%
A08	51.4	3.4	103.32%	103.15%	102.80%	102.26%	101.97%	101.99%
A09	51.2	3.4	102.90%	102.49%	102.26%	101.88%	101.87%	101.50%
A10	51.2	3.4	102.51%	102.20%	101.82%	101.67%	101.21%	100.50%
A11	51.3	3.4	102.20%	102.02%	101.09%	100.59%	100.60%	100.20%
A12	51.0	3.4	102.34%	102.20%	102.07%	101.70%	101.20%	101.21%
A13	51.6	3.4	103.13%	102.77%	102.80%	102.24%	101.81%	101.67%
A14	49.0	3.5	103.68%	103.51%	103.23%	102.33%	102.23%	101.88%
A15	49.7	3.4	102.52%	102.34%	102.23%	101.70%	101.20%	101.06%
A16	50.5	3.4	102.81%	102.44%	102.60%	102.38%	101.82%	101.87%
A17	51.4	3.5	102.31%	101.61%	101.73%	101.44%	101.55%	101.32%
A18	50.7	3.5	102.82%	101.67%	102.19%	101.39%	100.96%	100.69%
A19	49.8	3.5	103.13%	102.85%	103.02%	102.35%	101.72%	101.13%
A20	50.7	3.4	104.23%	103.91%	103.21%	103.04%	102.77%	102.50%
A21	51.0	3.4	103.62%	103.09%	103.21%	102.37%	101.97%	101.50%
A22	50.8	3.4	102.77%	102.33%	102.26%	101.46%	101.02%	100.83%
A23	50.3	3.4	103.08%	102.81%	102.48%	101.73%	101.34%	100.14%
A24	49.3	3.4	103.52%	103.09%	103.19%	102.42%	102.09%	101.31%
A25	51.1	3.4	102.22%	100.40%	102.18%	101.50%	101.03%	100.76%
Avg.	50.7	3.4	102.88%	102.50%	102.34%	101.76%	101.37%	101.13%
Min.	49.0	3.4	102.09%	100.40%	100.43%	99.84%	99.16%	99.65%
Max.	51.7	3.5	104.23%	103.91%	103.23%	103.04%	102.77%	102.50%
Med.	51.0	3.4	102.82%	102.44%	102.26%	101.70%	101.21%	101.06%
St. Dev.	0.7	0.01	0.0056	0.0073	0.0071	0.0069	0.0076	0.0067

7.3.1.2 CCT, CIE<sub>x</sub>, CIE<sub>y</sub> & Chromaticity Shift( $\Delta u'v'$ )

S/N	Initial( 0 h)			Chromaticity Shift( $\Delta u'v'$ )					
	CIE <sub>x</sub>	CIE <sub>y</sub>	CCT	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
A01	0.4398	0.4115	3016	0.00102	0.00120	0.00141	0.00171	0.00204	0.00171
A02	0.4432	0.4147	2984	0.00040	0.00073	0.00051	0.00102	0.00117	0.00100
A03	0.4408	0.4136	3015	0.00060	0.00082	0.00092	0.00102	0.00149	0.00133
A04	0.4395	0.4139	3040	0.00051	0.00060	0.00070	0.00114	0.00117	0.00122
A05	0.4363	0.4088	3052	0.00067	0.00061	0.00113	0.00150	0.00178	0.00180
A06	0.4417	0.4149	3011	0.00072	0.00061	0.00106	0.00144	0.00180	0.00175
A07	0.4404	0.4127	3014	0.00067	0.00073	0.00108	0.00148	0.00148	0.00148
A08	0.4397	0.4095	3001	0.00028	0.00022	0.00092	0.00114	0.00120	0.00130
A09	0.4459	0.4179	2967	0.00072	0.00061	0.00103	0.00117	0.00134	0.00130
A10	0.4441	0.4166	2985	0.00086	0.00061	0.00125	0.00134	0.00161	0.00161
A11	0.4388	0.4106	3024	0.00064	0.00051	0.00113	0.00144	0.00144	0.00125
A12	0.4418	0.4117	2984	0.00078	0.00061	0.00120	0.00136	0.00142	0.00161
A13	0.4377	0.4090	3030	0.00067	0.00041	0.00108	0.00130	0.00144	0.00148
A14	0.4393	0.4103	3015	0.00067	0.00054	0.00103	0.00134	0.00139	0.00161
A15	0.4429	0.4140	2985	0.00072	0.00060	0.00094	0.00117	0.00148	0.00148
A16	0.4432	0.4140	2980	0.00086	0.00054	0.00130	0.00130	0.00153	0.00148
A17	0.4479	0.4193	2947	0.00086	0.00054	0.00121	0.00121	0.00130	0.00130
A18	0.4358	0.4079	3054	0.00063	0.00071	0.00100	0.00130	0.00153	0.00153
A19	0.4407	0.4134	3016	0.00064	0.00040	0.00086	0.00108	0.00136	0.00144
A20	0.4390	0.4120	3033	0.00022	0.00028	0.00042	0.00086	0.00103	0.00112
A21	0.4415	0.4117	2989	0.00045	0.00041	0.00086	0.00117	0.00130	0.00148
A22	0.4378	0.4099	3036	0.00072	0.00050	0.00114	0.00144	0.00166	0.00166
A23	0.4382	0.4094	3026	0.00058	0.00054	0.00089	0.00125	0.00148	0.00175
A24	0.4434	0.4151	2984	0.00057	0.00032	0.00081	0.00108	0.00125	0.00153
A25	0.4412	0.4164	3031	0.00050	0.00054	0.00095	0.00117	0.00139	0.00149
Avg.	0.4408	0.4128	3008.8	0.00064	0.00057	0.00099	0.00126	0.00144	0.00147
Min.	0.4358	0.4079	2947	0.00022	0.00022	0.00042	0.00086	0.00103	0.00100
Max.	0.4479	0.4193	3054	0.00102	0.00120	0.00141	0.00171	0.00204	0.00180
Med.	0.4407	0.4127	3015	0.00067	0.00054	0.00103	0.00125	0.00144	0.00148
St. Dev.	0.0029	0.0030	27.17	0.00018	0.00019	0.00023	0.00019	0.00022	0.00020



7.3.2 Test Condition: Ts = 85 °C

Requirement	
Case Temperature [Ts]: 84.9 °C	Average [Ts]: 84.7 °C
Ambient Temperature [Ta]: 82.2 °C	Average [Ta]: 82.2 °C
Driver Current: 150 mA	Air Flow: Minimized
Measurement Current: 150 mA	Relative Humidity: < 65 %RH

7.3.2.1 Total Luminous Flux ( $\Phi_v$ )

S/N	Initial(0 h)		Luminous Maintenance( $\Phi_v$ )					
	TLF(lm)	Vf(V)	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
B01	51.1	3.4	100.67%	98.26%	96.66%	95.41%	95.04%	94.24%
B02	50.4	3.4	100.42%	98.26%	97.33%	96.67%	94.74%	94.32%
B03	48.9	3.5	102.85%	101.57%	101.03%	101.29%	100.12%	99.51%
B04	48.9	3.4	102.03%	100.56%	99.70%	99.22%	97.41%	96.98%
B05	49.4	3.4	101.70%	101.23%	101.01%	101.09%	99.47%	97.84%
B06	50.1	3.4	100.74%	98.12%	96.84%	96.12%	95.92%	95.17%
B07	51.3	3.5	100.82%	99.22%	99.03%	98.80%	97.51%	96.49%
B08	49.7	3.4	101.02%	99.62%	98.46%	97.92%	96.30%	95.80%
B09	51.9	3.4	100.20%	99.05%	98.23%	97.69%	96.10%	95.21%
B10	50.7	3.4	100.25%	97.74%	96.54%	95.85%	95.37%	94.64%
B11	48.7	3.4	101.86%	100.12%	99.38%	98.96%	96.98%	96.11%
B12	52.4	3.4	101.50%	101.52%	101.51%	101.58%	100.55%	99.50%
B13	51.7	3.4	100.52%	99.75%	98.85%	98.83%	97.34%	96.39%
B14	51.5	3.4	101.74%	100.69%	99.88%	99.73%	98.53%	97.50%
B15	51.0	3.5	99.69%	98.10%	97.12%	96.78%	96.62%	95.73%
B16	50.7	3.5	100.51%	98.37%	97.08%	95.53%	95.28%	94.88%
B17	51.4	3.5	99.48%	98.20%	96.81%	96.67%	95.19%	94.59%
B18	51.3	3.4	99.70%	98.50%	97.83%	97.61%	96.09%	94.93%
B19	50.7	3.4	100.08%	98.30%	97.75%	97.39%	96.38%	95.74%
B20	50.6	3.5	100.77%	98.88%	97.34%	96.50%	96.22%	95.35%
B21	50.9	3.4	100.43%	98.99%	98.22%	97.80%	96.50%	95.58%
B22	51.6	3.4	101.09%	99.91%	98.90%	98.68%	97.15%	96.19%
B23	50.9	3.4	100.99%	98.24%	96.72%	95.89%	95.46%	94.36%
B24	51.0	3.4	100.26%	98.99%	98.31%	97.82%	96.46%	95.57%
B25	49.5	3.4	100.91%	99.30%	97.95%	97.40%	95.76%	95.11%
Avg.	50.7	3.4	100.81%	99.26%	98.34%	97.89%	96.74%	95.91%
Min.	48.75	3.41	99.48%	97.74%	96.54%	95.41%	94.74%	94.24%
Max.	52.37	3.47	102.85%	101.57%	101.51%	101.58%	100.55%	99.51%
Med.	50.86	3.44	100.74%	98.99%	98.22%	97.69%	96.38%	95.58%
St. Dev.	0.973	0.013	0.0080	0.0114	0.0144	0.0175	0.0153	0.0143

7.3.2.2 CCT, CIE<sub>x</sub>, CIE<sub>y</sub> & Chromaticity Shift( $\Delta u'v'$ )

S/N	Initial( 0 h)			Chromaticity Shift( $\Delta u'v'$ )					
	CIE <sub>x</sub>	CIE <sub>y</sub>	CCT	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
B01	0.4408	0.4155	3030	0.00095	0.00102	0.00153	0.00188	0.00303	0.00311
B02	0.4403	0.4115	3007	0.00088	0.00082	0.00119	0.00149	0.00257	0.00247
B03	0.4375	0.4137	3071	0.00044	0.00053	0.00034	0.00042	0.00069	0.00057
B04	0.4360	0.4101	3068	0.00034	0.00009	0.00044	0.00080	0.00194	0.00193
B05	0.4372	0.4124	3065	0.00023	0.00025	0.00016	0.00024	0.00124	0.00106
B06	0.4370	0.4086	3038	0.00075	0.00137	0.00192	0.00214	0.00316	0.00297
B07	0.4425	0.4132	2985	0.00079	0.00117	0.00143	0.00152	0.00266	0.00275
B08	0.4460	0.4182	2967	0.00070	0.00098	0.00123	0.00168	0.00270	0.00265
B09	0.4397	0.4122	3022	0.00092	0.00117	0.00157	0.00186	0.00281	0.00276
B10	0.4397	0.4139	3037	0.00095	0.00138	0.00179	0.00208	0.00325	0.00343
B11	0.4362	0.4101	3064	0.00034	0.00004	0.00072	0.00087	0.00204	0.00223
B12	0.4465	0.4194	2970	0.00034	0.00022	0.00033	0.00041	0.00140	0.00146
B13	0.4440	0.4163	2986	0.00106	0.00120	0.00159	0.00160	0.00264	0.00261
B14	0.4458	0.4165	2959	0.00003	0.00026	0.00045	0.00060	0.00160	0.00170
B15	0.4412	0.4142	3014	0.00076	0.00115	0.00159	0.00168	0.00282	0.00303
B16	0.4372	0.4102	3048	0.00073	0.00098	0.00178	0.00221	0.00251	0.00313
B17	0.4441	0.4168	2987	0.00085	0.00102	0.00137	0.00163	0.00257	0.00256
B18	0.4464	0.4189	2967	0.00079	0.00084	0.00111	0.00119	0.00219	0.00233
B19	0.4398	0.4116	3017	0.00079	0.00112	0.00165	0.00166	0.00229	0.00267
B20	0.4417	0.4134	3000	0.00070	0.00103	0.00171	0.00208	0.00322	0.00345
B21	0.4429	0.4137	2983	0.00070	0.00103	0.00143	0.00144	0.00251	0.00253
B22	0.4399	0.4113	3012	0.00047	0.00076	0.00136	0.00152	0.00258	0.00265
B23	0.4410	0.4136	3012	0.00066	0.00112	0.00178	0.00215	0.00343	0.00387
B24	0.4361	0.4079	3048	0.00066	0.00089	0.00143	0.00165	0.00282	0.00299
B25	0.4444	0.4165	2981	0.00066	0.00089	0.00151	0.00174	0.00281	0.00283
Avg.	0.4410	0.4136	3013.5	0.00066	0.00085	0.00126	0.00146	0.00246	0.00255
Min.	0.4360	0.4079	2959	0.00003	0.00004	0.00016	0.00024	0.00069	0.00057
Max.	0.4465	0.4194	3071	0.00106	0.00138	0.00192	0.00221	0.00343	0.00387
Med.	0.4408	0.4136	3012	0.00070	0.00098	0.00143	0.00163	0.00258	0.00265
St. Dev.	0.0034	0.0031	34.79	0.00025	0.00039	0.00053	0.00058	0.00067	0.00075

### 7.3.3 Test Condition: Ts = 105 °C

Requirement	
Case Temperature [Ts]: 104.7 °C	Average [Ts]: 104.6 °C
Ambient Temperature [Ta]: 102.0 °C	Average [Ta]: 101.8 °C
Driver Current: 150 mA	Air Flow: Minimized
Measurement Current: 150 mA	Relative Humidity: < 65 %RH

#### 7.3.3.1 Total Luminous Flux ( $\Phi_v$ )

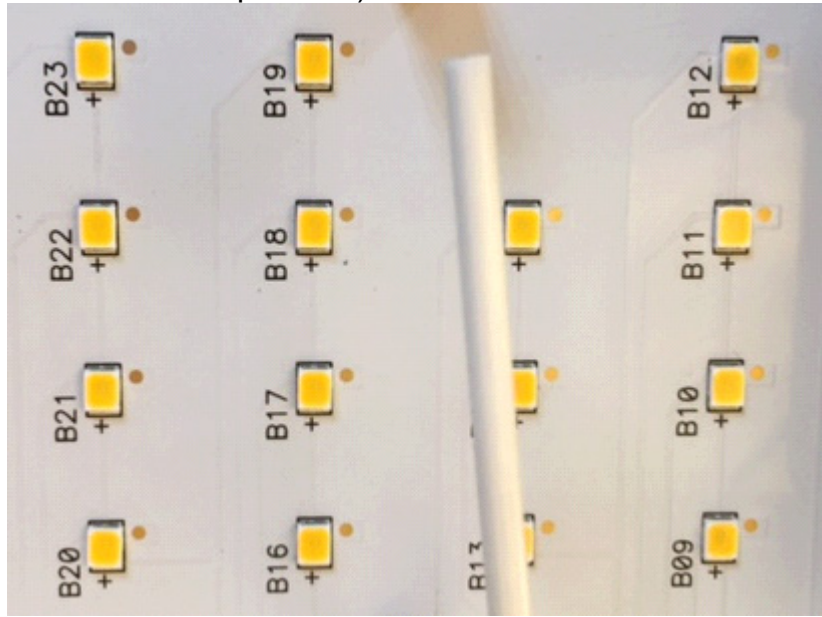
S/N	Initial( 0 h)		Luminous Maintenance( $\Phi_v$ )					
	TLF(lm)	Vf(V)	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
C01	51.2	3.4	99.85%	98.68%	96.73%	95.45%	95.42%	94.54%
C02	51.4	3.4	99.60%	98.78%	97.15%	96.35%	96.09%	95.17%
C03	50.7	3.4	99.92%	98.94%	96.82%	96.05%	95.65%	95.11%
C04	51.4	3.4	99.98%	99.30%	98.04%	97.00%	95.87%	94.83%
C05	52.0	3.4	100.02%	99.39%	97.94%	97.12%	95.43%	94.81%
C06	51.0	3.4	99.82%	99.09%	97.67%	97.12%	95.27%	94.69%
C07	51.1	3.4	99.46%	98.18%	96.82%	95.93%	96.11%	95.34%
C08	51.8	3.4	99.24%	98.59%	97.42%	96.48%	95.39%	94.95%
C09	51.4	3.4	99.95%	98.09%	96.42%	95.34%	95.39%	94.86%
C10	50.7	3.4	100.17%	98.54%	96.94%	96.06%	95.91%	95.42%
C11	50.1	3.4	100.31%	100.21%	99.07%	97.83%	96.50%	96.11%
C12	50.7	3.4	99.79%	99.01%	97.82%	96.72%	95.70%	95.37%
C13	51.0	3.4	102.29%	101.56%	100.12%	99.37%	98.17%	97.07%
C14	52.2	3.5	99.19%	98.41%	96.99%	96.39%	94.96%	94.40%
C15	51.1	3.5	100.31%	99.43%	97.97%	97.18%	95.68%	95.23%
C16	51.0	3.4	99.63%	98.81%	97.25%	96.62%	95.35%	94.92%
C17	52.3	3.4	99.68%	98.94%	98.04%	97.09%	95.71%	94.71%
C18	50.0	3.4	100.45%	99.21%	97.68%	96.75%	95.25%	94.56%
C19	51.4	3.4	99.66%	99.10%	97.93%	97.90%	96.71%	96.50%
C20	51.2	3.4	102.01%	101.16%	99.47%	98.68%	97.10%	96.74%
C21	52.6	3.4	99.19%	98.87%	97.67%	97.70%	96.87%	96.53%
C22	50.6	3.4	99.92%	99.54%	98.29%	98.15%	96.71%	95.99%
C23	50.3	3.4	100.10%	99.25%	97.76%	97.33%	95.82%	95.11%
C24	49.1	3.4	100.04%	99.08%	97.37%	96.83%	95.29%	94.80%
C25	51.6	3.4	100.16%	99.83%	98.10%	97.32%	95.64%	95.01%
Avg.	51.1	3.4	100.03%	99.20%	97.74%	96.99%	95.92%	95.31%
Min.	49.13	3.41	99.19%	98.09%	96.42%	95.34%	94.96%	94.40%
Max.	52.60	3.46	102.29%	101.56%	100.12%	99.37%	98.17%	97.07%
Med.	51.13	3.44	99.92%	99.08%	97.68%	97.00%	95.70%	95.11%
St. Dev.	0.766	0.012	0.007	0.008	0.009	0.009	0.007	0.007

7.3.3.2 CCT, CIE<sub>x</sub>, CIE<sub>y</sub> & Chromaticity Shift( $\Delta u'v'$ )

S/N	Initial( 0 h)			Chromaticity Shift( $\Delta u'v'$ )					
	CIE <sub>x</sub>	CIE <sub>y</sub>	CCT	1000 h	2000 h	3000 h	4000 h	5000 h	6000 h
C01	0.4443	0.4159	2978	0.00081	0.00132	0.00200	0.00314	0.00383	0.00437
C02	0.4464	0.4182	2962	0.00080	0.00126	0.00181	0.00250	0.00313	0.00376
C03	0.4457	0.4170	2963	0.00080	0.00130	0.00181	0.00260	0.00334	0.00409
C04	0.4469	0.4193	2963	0.00090	0.00117	0.00155	0.00211	0.00210	0.00262
C05	0.4414	0.4116	2990	0.00081	0.00122	0.00181	0.00255	0.00329	0.00386
C06	0.4394	0.4093	3005	0.00081	0.00102	0.00160	0.00211	0.00285	0.00351
C07	0.4389	0.4116	3030	0.00132	0.00202	0.00240	0.00321	0.00367	0.00413
C08	0.4420	0.4130	2992	0.00090	0.00117	0.00160	0.00211	0.00209	0.00228
C09	0.4403	0.4114	3006	0.00091	0.00130	0.00190	0.00269	0.00341	0.00411
C10	0.4426	0.4123	2976	0.00091	0.00140	0.00202	0.00263	0.00345	0.00408
C11	0.4402	0.4133	3023	0.00042	0.00099	0.00122	0.00194	0.00220	0.00274
C12	0.4379	0.4131	3059	0.00091	0.00126	0.00160	0.00221	0.00212	0.00250
C13	0.4437	0.4152	2982	0.00050	0.00094	0.00117	0.00153	0.00140	0.00174
C14	0.4384	0.4107	3033	0.00120	0.00155	0.00230	0.00271	0.00316	0.00371
C15	0.4419	0.4145	3005	0.00081	0.00098	0.00141	0.00170	0.00180	0.00219
C16	0.4420	0.4136	2997	0.00070	0.00103	0.00140	0.00170	0.00171	0.00215
C17	0.4400	0.4114	3011	0.00063	0.00050	0.00206	0.00150	0.00210	0.00273
C18	0.4391	0.4102	3017	0.00080	0.00122	0.00182	0.00224	0.00294	0.00338
C19	0.4421	0.4139	2997	0.00091	0.00117	0.00136	0.00165	0.00160	0.00197
C20	0.4394	0.4100	3010	0.00050	0.00099	0.00161	0.00200	0.00235	0.00289
C21	0.4365	0.4078	3040	0.00081	0.00098	0.00120	0.00150	0.00152	0.00183
C22	0.4431	0.4143	2984	0.00091	0.00108	0.00141	0.00180	0.00214	0.00258
C23	0.4440	0.4159	2983	0.00090	0.00126	0.00170	0.00220	0.00253	0.00311
C24	0.4446	0.4178	2987	0.00080	0.00141	0.00209	0.00257	0.00307	0.00355
C25	0.4455	0.4161	2960	0.00071	0.00140	0.00206	0.00269	0.00351	0.00412
Avg.	0.4418	0.4134	2999	0.00082	0.00119	0.00171	0.00219	0.00256	0.00312
Min.	0.4365	0.4078	2960	0.00042	0.00050	0.00117	0.00150	0.00140	0.00174
Max.	0.4469	0.4193	3059	0.00132	0.00202	0.00240	0.00321	0.00383	0.00437
Med.	0.4420	0.4133	2997	0.00081	0.00122	0.00170	0.00220	0.00253	0.00311
St. Dev.	0.0028	0.0029	25.96	0.00019	0.00027	0.00034	0.00049	0.00074	0.00084

**8 TEMPERATURE MEASUREMENT POINT (TMP) DEFINITION**

Ta (Measured Point of Ambient Temperature)



Ts (Measured Point of Case Temperature)

