

Cree® XLamp® XT-E BSY LEDs

INFORMATION REQUIRED BY LM-80-08

Cree classifies these LEDs as "LED packages" per Sep 9, 2011 ENERGY STAR guidelines¹.

1. Number of LED light sources tested	See individual data sets on following pages.
2. Description of LED light sources	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT) This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx All measurements provided are LED package measurements.
3. Description of auxiliary equipment	Instrument Systems ISP-500 Integrating Sphere Instrument Systems CAS-140 Spectrometer Keithley 2420 Sourcemeter
4. Operating cycle	LED arrays are driven at constant current.
5. Ambient conditions	LED arrays are operated in environmental control chambers. The temperature of the ambient air around the LED arrays is actively controlled by air flowing through the chamber. T_A : See individual data sets on following pages RH : < 45% Air flow : 800 CFM
6. Case temperature	See individual data sets on following pages.
7. Drive current of the LED light source during life-time test.	See individual data sets on following pages.
8. Initial luminous flux and forward voltage at photometric measurement current	See individual data sets on following pages.
9. Lumen maintenance data for each individual LED light source	See individual data sets on following pages. Ambient temperature during luminous flux testing set to 25°C ±2°C.
10. Observation of LED light source failures	No failures occurred during testing.
11. LED light source monitoring interval	See individual data sets on following pages.
12. Photometric measurement uncertainty	Cree maintains a tolerance of ±2.0% on flux measurements for LM-80 testing.
13. Chromaticity shift reported over the measurement time	See individual data sets on following pages. Ambient temperature during chromaticity testing set to 25°C ±2°C.
Test Report Authorization	Amber Abare, Components Reliability Laboratory Manager
Sampling method	Cree uses systematic sampling of production LEDs, with checks to ensure that the behavior of early samples are representative of the behavior of later samples.

¹ http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/luminaires/ENERGY_STAR_Final_Lumen_Maintenance_Guidance.pdf

REVISION HISTORY

Revision	Date	Change
0	Aug 1, 2012	Date of first issue
1	Sep 27, 2012	Removed successor data set 1. Added data set 2.
2	Nov 13, 2012	Added data sets 3-5.
3	Jul 22, 2013	Added data set 4+.
4	Sep 6, 2013	Extended data sets 2 & 3 with longer test duration.

TEST RESULTS SUMMARY

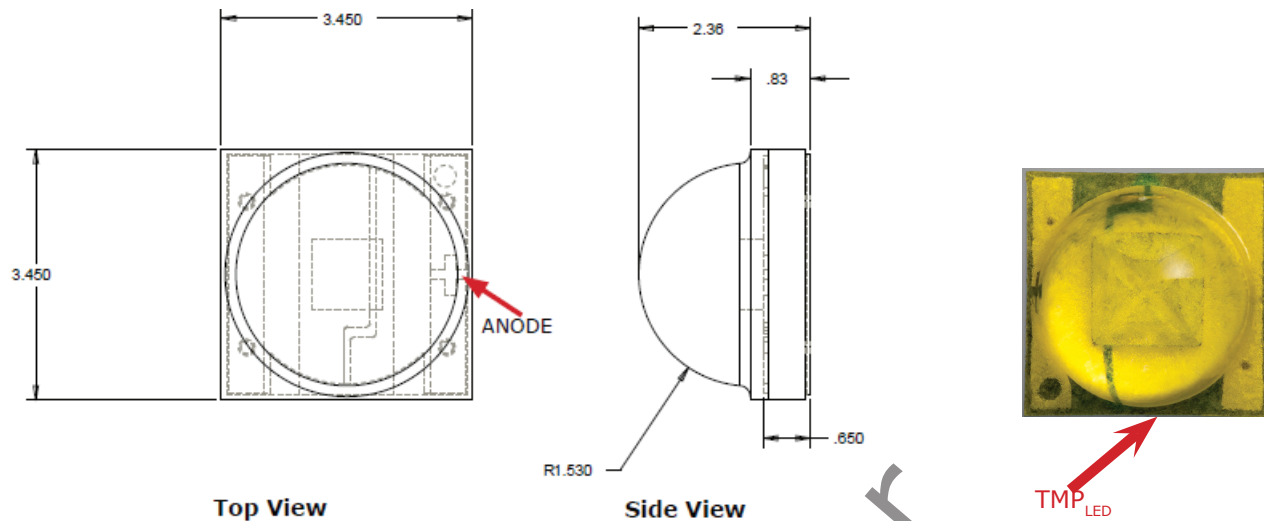
Data Set	Case Temp. [T _s]	Ambient Temp. [T _A]	Drive Current [I _F]	Average Lumen Maintenance at 6,000 hours	Average Chromaticity Shift (Δu'v') at 6,000 hours	Reported TM-21 Lifetimes
3	55°C	55°C	1000 mA	101.3%	0.0006	L95(11k) = 59,100 hrs L90(11k) > 66,500 hrs L80(11k) > 66,500 hrs L70(11k) > 66,500 hrs
2	85°C	85°C	1000 mA	100.2%	0.0006	L95(11k) > 66,500 hrs L90(11k) > 66,500 hrs L80(11k) > 66,500 hrs L70(11k) > 66,500 hrs
4	105°C	105°C	1000 mA	98.7%	0.0004	L90(6k) = 26,900 hrs L80(6k) > 36,300 hrs L70(6k) > 36,300 hrs
5	105°C	105°C	1500 mA	97.6%	0.0006	L90(6k) = 22,700 hrs L80(6k) > 36,300 hrs L70(6k) > 36,300 hrs

The following data sets are extended versions of some of the data sets above, but have sample sizes less than 25 units each. Please refer to each individual data set for the exact number of samples included. These data sets are projected according to IES TM-21-11 standards and the Reported L70 lifetimes presented are valid under TM-21-11. However, the use of these extended data sets may not be allowed by a particular program because of the sample size of the data set. Cree recommends reviewing the details on LM-80 lumen maintenance for each program to verify that data sets with fewer than 25 samples are considered valid. If not, then the data sets above should be referenced.

Data Set	Case Temp. [T _s]	Ambient Temp. [T _A]	Drive Current [I _F]	Average Lumen Maintenance at 6,000 hours	Average Chromaticity Shift (Δu'v') at 6,000 hours	Reported TM-21 Lifetimes
4+	105°C	105°C	1000 mA	98.7%	0.0004	L95(11k) > 66,500 hrs L90(11k) > 66,500 hrs L80(11k) > 66,500 hrs L70(11k) > 66,500 hrs

MECHANICAL DIMENSIONS & TEMPERATURE MEASUREMENT POINT

All measurements are $\pm .13$ mm unless otherwise indicated.



The LED temperature measurement point (TMP_{LED}) should be measured on the PCB surface, as close to the LED's thermal pad as possible (shown in the picture above). It is not required to use a solder footprint for the thermal pad that is larger than the LED itself. In testing, Cree has found such a solder pad to have insignificant impact on the resulting temperature measurement.

DATA SET 3: 55°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I _F]	1000 mA
Testing Initiation Date	November 28, 2011
Case Temperature [T _s]	55°C
Ambient Temperature [T _A]	55°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)																							
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	11088			
1	328.1	3.41	4619	N/A	101.4	101.8	101.1	102.7	104.3	100.5	103.8	100.9	102.4	103.3	102.6	101.9	103.2	102.5	101.2	102.7	103.8	102.6	102.2	101.2	102.1	102.1		
2	331.4	3.42	4611	N/A	99.4	100.1	101.3	101.6	101.8	100.2	101.0	100.2	100.9	101.3	101.2	100.7	101.9	101.3	101.3	101.9	101.6	100.9	101.5	100.9	101.1	101.1		
3	318.8	3.38	4612	N/A	98.9	101.4	101.8	103.0	104.1	101.6	104.1	100.5	102.4	103.2	102.7	101.8	103.2	103.0	100.5	103.2	103.4	102.6	102.2	101.2	102.3	102.3		
4	323.3	3.41	4603	N/A	100.6	101.6	101.1	102.7	103.0	101.7	102.6	101.5	102.3	102.8	102.7	102.1	103.4	102.8	101.6	103.4	103.1	102.5	102.9	102.4	102.4	102.4		
5	308.0	3.47	4609	N/A	100.3	102.6	102.9	103.6	104.5	102.4	103.6	101.5	103.5	104.4	103.7	103.0	104.2	104.1	100.7	104.4	103.9	103.3	103.1	102.0	103.1			
6	327.5	3.45	4582	N/A	101.6	102.3	102.9	103.8	103.8	103.1	103.2	102.3	103.2	103.6	102.8	103.2	104.2	103.8	102.8	104.3	104.0	103.3	103.7	103.2	103.0	103.0		
7	325.4	3.48	4617	N/A	100.5	101.3	102.8	102.6	102.5	101.8	102.2	100.9	101.5	102.4	102.2	101.6	102.7	102.4	102.3	103.0	102.6	102.0	102.5	101.9	101.9	101.9		
8	316.3	3.42	4584	N/A	100.4	102.3	101.9	103.1	103.4	102.1	103.3	99.7	101.8	102.8	102.1	101.3	102.5	102.9	100.0	102.8	102.0	101.7	101.6	100.5	101.8	101.8		
9	330.1	3.42	4608	N/A	99.4	101.3	101.6	102.0	102.0	100.5	102.3	100.0	100.5	101.3	100.9	99.9	101.2	101.7	100.6	102.1	100.7	100.5	100.6	100.0	100.9	100.9		
10	344.1	3.45	4551	N/A	100.2	103.6	103.7	102.6	103.2	101.6	100.9	101.7	102.5	100.7	103.3	101.8	101.8	102.6	102.1	100.1	100.7	101.1	100.3	101.1	101.3	101.3		
11	350.9	3.34	4567	N/A	100.1	102.4	103.0	101.7	102.0	102.2	101.1	102.4	101.7	101.5	102.3	100.9	102.4	102.1	102.7	102.0	100.5	102.2	101.2	101.5	101.9	101.9		
12	332.1	3.41	4570	N/A	99.8	100.7	102.3	103.4	104.3	101.6	102.8	101.1	102.5	103.1	102.4	102.0	102.9	102.9	101.8	102.7	104.2	102.4	102.0	102.3	102.2	102.2		
13	318.1	3.38	4587	N/A	99.2	99.4	99.9	100.9	101.0	99.4	100.4	99.5	100.2	100.7	100.4	100.1	100.0	100.9	100.4	101.5	101.1	100.5	100.8	100.7	101.1	101.1		
14	353.1	3.41	4527	N/A	101.4	100.9	101.6	100.7	101.0	101.0	100.1	101.5	101.0	100.7	101.5	101.1	101.8	101.9	101.6	100.9	100.1	101.3	99.6	100.6	100.3	100.3		
15	346.0	3.39	4573	N/A	99.8	102.1	102.8	101.7	101.7	101.5	100.2	102.1	101.6	101.3	102.1	101.9	102.3	101.7	102.1	101.2	100.8	101.7	100.8	101.2	101.1	101.1		
16	315.0	3.38	4606	N/A	99.2	100.9	101.2	103.0	103.9	101.0	102.6	100.1	102.0	102.5	102.1	101.5	102.3	102.7	100.9	102.4	103.7	101.8	101.2	101.4	101.7	101.7		
17	321.0	3.41	4588	N/A	99.2	99.3	100.0	101.2	101.1	99.7	100.8	99.7	100.5	100.9	100.9	100.2	101.3	101.1	100.5	101.7	101.2	100.5	101.0	100.9	101.3	101.3		
18	305.5	3.39	4626	N/A	99.2	101.5	102.4	103.2	103.5	101.5	102.9	100.7	101.9	102.2	101.9	101.2	102.0	103.1	100.9	102.8	103.7	101.7	101.3	101.3	101.7	101.7		
19	333.8	3.41	4530	N/A	100.9	102.8	103.0	103.2	103.2	101.8	100.5	101.6	101.7	100.4	102.4	101.9	101.2	101.8	101.5	99.9	99.4	101.0	99.4	99.5	99.5	99.5		
20	343.3	3.41	4566	N/A	101.0	101.0	101.3	100.4	100.6	100.3	99.9	101.0	99.9	100.2	99.9	100.5	100.4	100.2	100.6	99.4	99.1	99.8	99.2	99.6	99.2	99.2		
21	339.3	3.46	4513	N/A	101.5	103.6	104.1	104.0	103.7	103.0	100.8	102.2	101.5	100.3	101.5	101.0	100.5	100.8	100.7	99.0	99.6	100.4	99.2	99.0	98.7	98.7		
22	351.3	3.46	4591	N/A	100.4	100.8	101.7	100.7	101.1	101.1	101.2	101.4	100.6	101.0	100.3	100.5	100.9	100.5	101.2	100.4	99.7	101.0	99.9	100.4	100.5	100.5		
23	340.0	3.42	4570	N/A	101.6	102.9	103.0	102.5	103.2	101.9	101.7	102.2	102.7	101.0	101.6	101.9	100.9	101.2	100.8	99.4	99.6	100.6	99.4	99.1	99.7	99.7		
24	353.6	3.41	4578	N/A	100.0	101.4	101.6	100.4	101.0	101.0	100.6	101.6	100.9	101.0	100.8	101.2	101.6	101.4	101.7	101.2	99.3	101.2	100.5	101.2	101.3	101.3		
25	326.9	3.37	4625	N/A	99.1	99.5	100.3	101.2	101.1	99.8	100.6	99.8	100.4	100.7	100.4	99.8	101.0	101.1	100.7	101.6	101.4	100.6	101.1	100.9	101.4	101.4		
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25		
Mean	331.3	3.42			100.2	101.5	102.0	102.2	102.6	101.3	101.7	101.0	101.6	101.7	101.8	101.3	102.0	102.0	101.3	101.8	101.6	101.5	101.1	101.0	101.3	101.3		
Median	330.1	3.41			100.2	101.4	101.8	102.6	103.0	101.5	101.1	101.1	101.7	101.3	102.1	101.3	101.9	101.8	101.2	101.9	101.2	101.3	101.1	101.1	101.3	101.3		
σ	14.0	0.03			0.88	1.18	1.09	1.12	1.28	0.97	1.31	0.89	0.97	1.19	1.95	0.86	1.08	1.03	0.74	1.48	1.74	0.95	1.25	1.01	1.12	1.12		
Min.	305.5	3.34			98.9	99.3	99.9	100.4	100.6	99.4	99.9	99.5	99.9	100.2	99.9	99.9	100.4	100.2	100.0	99.0	99.1	99.8	99.2	99.0	98.7	98.7		
Max.	353.6	3.48			101.6	103.6	104.1	104.0	104.5	103.4	103.1	102.4	103.5	104.4	103.8	103.2	104.2	104.1	102.8	104.4	104.2	103.3	103.7	103.2	103.1	103.1		

DATA SET 3: 55°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT) This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I _F]	1000 mA
Testing Initiation Date	November 28, 2011
Case Temperature [T _s]	55°C
Ambient Temperature [T _A]	55°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu^*v^*)																							
	CCx	CCy	Calc CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	11088			
1	0.3698	0.4512	4619	N/A	0.0005	0.0000	0.0002	0.0002	0.0004	0.0001	0.0002	0.0001	0.0000	0.0004	0.0002	0.0005	0.0002	0.0001	0.0002	0.0001	0.0002	0.0002	0.0004	0.0007	0.0007			
2	0.3702	0.4513	4611	N/A	0.0001	0.0001	0.0004	0.0002	0.0004	0.0002	0.0002	0.0002	0.0000	0.0004	0.0001	0.0003	0.0002	0.0002	0.0001	0.0000	0.0001	0.0002	0.0002	0.0007	0.0006			
3	0.3702	0.4518	4612	N/A	0.0001	0.0001	0.0002	0.0002	0.0003	0.0003	0.0003	0.0001	0.0001	0.0005	0.0003	0.0005	0.0004	0.0003	0.0001	0.0001	0.0003	0.0003	0.0004	0.0008	0.0008			
4	0.3707	0.4525	4603	N/A	0.0002	0.0000	0.0003	0.0001	0.0001	0.0002	0.0001	0.0001	0.0000	0.0002	0.0002	0.0003	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	0.0004	0.0010	0.0008			
5	0.3706	0.4534	4609	N/A	0.0001	0.0000	0.0000	0.0000	0.0002	0.0003	0.0003	0.0001	0.0001	0.0005	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001	0.0002	0.0004	0.0007	0.0007			
6	0.3719	0.4544	4582	N/A	0.0001	0.0001	0.0002	0.0000	0.0000	0.0002	0.0000	0.0000	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0009	0.0006			
7	0.3699	0.4512	4617	N/A	0.0001	0.0000	0.0003	0.0001	0.0000	0.0001	0.0000	0.0000	0.0001	0.0003	0.0002	0.0002	0.0001	0.0002	0.0003	0.0001	0.0001	0.0002	0.0003	0.0005	0.0006			
8	0.3717	0.4534	4584	N/A	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003	0.0002	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0006	0.0006			
9	0.3708	0.4544	4608	N/A	0.0002	0.0002	0.0001	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0003	0.0004	0.0003	0.0003	0.0001	0.0001	0.0002	0.0002	0.0004	0.0010	0.0006			
10	0.3718	0.4444	4551	N/A	0.0001	0.0003	0.0002	0.0008	0.0005	0.0011	0.0009	0.0008	0.0006	0.0004	0.0002	0.0004	0.0017	0.0011	0.0011	0.0009	0.0007	0.0013	0.0012	0.0010	0.0006			
11	0.3711	0.4438	4567	N/A	0.0002	0.0005	0.0004	0.0004	0.0004	0.0005	0.0007	0.0006	0.0005	0.0009	0.0008	0.0009	0.0008	0.0007	0.0008	0.0008	0.0008	0.0006	0.0004	0.0005	0.0000			
12	0.3731	0.4581	4570	N/A	0.0004	0.0002	0.0006	0.0007	0.0007	0.0008	0.0005	0.0005	0.0004	0.0008	0.0006	0.0007	0.0005	0.0006	0.0006	0.0003	0.0006	0.0005	0.0007	0.0008	0.0007			
13	0.3724	0.4589	4587	N/A	0.0003	0.0001	0.0004	0.0004	0.0003	0.0004	0.0003	0.0003	0.0002	0.0005	0.0004	0.0006	0.0005	0.0004	0.0005	0.0002	0.0004	0.0005	0.0006	0.0007	0.0006			
14	0.3735	0.4478	4527	N/A	0.0003	0.0007	0.0007	0.0007	0.0005	0.0008	0.0009	0.0008	0.0007	0.0013	0.0013	0.0011	0.0013	0.0016	0.0012	0.0011	0.0009	0.0008	0.0009	0.0009	0.0000			
15	0.3706	0.4422	4573	N/A	0.0004	0.0006	0.0005	0.0005	0.0005	0.0008	0.0009	0.0008	0.0008	0.0006	0.0012	0.0013	0.0016	0.0011	0.0010	0.0010	0.0007	0.0009	0.0005	0.0007	0.0005			
16	0.3709	0.4546	4606	N/A	0.0002	0.0002	0.0006	0.0006	0.0007	0.0007	0.0005	0.0003	0.0005	0.0005	0.0008	0.0008	0.0009	0.0007	0.0007	0.0006	0.0005	0.0009	0.0007	0.0009	0.0009			
17	0.3717	0.4546	4588	N/A	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0000	0.0001	0.0003	0.0004	0.0004			
18	0.3697	0.4529	4626	N/A	0.0002	0.0002	0.0005	0.0004	0.0004	0.0007	0.0004	0.0007	0.0003	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0007	0.0008	0.0006			
19	0.3737	0.4489	4525	N/A	0.0001	0.0002	0.0002	0.0002	0.0001	0.0007	0.0007	0.0007	0.0007	0.0009	0.0002	0.0012	0.0005	0.0002	0.0014	0.0015	0.0016	0.0014	0.0012	0.0015	0.0011			
20	0.3711	0.4438	4568	N/A	0.0006	0.0010	0.0010	0.0009	0.0008	0.0012	0.0013	0.0010	0.0010	0.0005	0.0007	0.0005	0.0002	0.0012	0.0013	0.0011	0.0010	0.0009	0.0012	0.0009	0.0013			
21	0.3740	0.4468	4513	N/A	0.0001	0.0010	0.0006	0.0005	0.0006	0.0010	0.0011	0.0009	0.0001	0.0021	0.0019	0.0009	0.0021	0.0021	0.0020	0.0020	0.0016	0.0023	0.0017	0.0018	0.0015			
22	0.3694	0.4600	4591	N/A	0.0002	0.0013	0.0009	0.0009	0.0006	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006	0.0012	0.0016	0.0015	0.0015	0.0013	0.0009	0.0008	0.0010	0.0013	0.0005			
23	0.3706	0.4418	4570	N/A	0.0001	0.0004	0.0003	0.0003	0.0002	0.0007	0.0011	0.0007	0.0004	0.0013	0.0011	0.0010	0.0022	0.0019	0.0019	0.0017	0.0015	0.0017	0.0018	0.0017	0.0010			
24	0.3704	0.4427	4578	N/A	0.0003	0.0009	0.0006	0.0007	0.0006	0.0007	0.0008	0.0008	0.0008	0.0004	0.0017	0.0016	0.0015	0.0014	0.0015	0.0015	0.0014	0.0008	0.0012	0.0010	0.0008			
25	0.3698	0.4529	4625	N/A	0.0002	0.0001	0.0003	0.0002	0.0001	0.0003	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002			
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25			
Mean					0.0002	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0004	0.0003	0.0007	0.0006	0.0006	0.0008	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.0009	0.0006			
Median					0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0005	0.0004	0.0005	0.0005	0.0006	0.0005	0.0003	0.0005	0.0005	0.0005	0.0006	0.0006			
Min					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	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001			
Max					0.0006	0.0013	0.0010	0.0009	0.0008	0.0012	0.0013	0.0010	0.0010	0.0021	0.0019	0.0015	0.0022	0.0021	0.0020	0.0020	0.0016	0.0023	0.0018	0.0018	0.0015			

DATA SET 2: 85°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1000 mA
Testing Initiation Date	November 16, 2011
Case Temperature [T_s]	85°C
Ambient Temperature [T_A]	85°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)																					
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	11088	
1	351.8	3.40	4614	N/A	100.2	103.0	102.6	102.8	102.8	102.4	100.8	103.2	103.9	103.6	103.5	103.1	103.7	104.2	103.9	102.6	103.3	103.3	102.6	104.5	103.6	
2	347.8	3.38	4575	N/A	98.9	102.1	101.4	99.6	99.8	100.1	99.1	99.9	100.8	100.7	100.2	100.0	101.4	101.4	101.2	101.2	100.8	101.2	100.7	101.1	101.0	
3	341.2	3.39	4617	N/A	100.0	102.8	102.6	102.7	102.6	102.7	101.0	103.0	103.3	103.4	103.4	103.4	102.2	103.5	103.7	103.8	102.7	103.1	103.2	102.1	103.9	103.4
4	335.5	3.41	4559	N/A	99.8	102.3	102.4	102.5	102.2	102.4	101.3	102.4	102.6	102.8	102.9	101.6	102.6	102.9	103.1	102.2	102.3	102.5	101.4	103.1	102.7	
5	354.2	3.41	4600	N/A	99.6	102.1	100.7	99.2	99.4	99.7	98.9	99.4	100.3	100.3	99.5	99.3	100.3	100.2	100.1	100.2	99.8	100.2	99.7	100.2	99.8	
6	353.6	3.40	4544	N/A	100.3	101.1	101.3	100.4	100.9	100.0	100.6	101.4	101.6	102.2	100.8	102.1	102.2	102.2	102.3	102.1	101.8	102.1	101.6	102.0	101.8	
7	324.8	3.41	4579	N/A	100.8	105.8	104.9	102.0	103.1	103.4	102.2	102.6	102.8	103.1	103.1	101.7	102.8	102.9	103.3	102.5	102.4	102.5	101.2	102.6	102.4	
8	366.8	3.42	4579	N/A	100.7	103.3	101.4	100.1	100.2	100.5	99.3	99.9	100.8	100.9	100.3	99.7	101.4	101.5	101.3	101.4	101.0	101.3	100.8	101.2	101.0	
9	340.6	3.38	4616	N/A	98.8	101.2	100.2	99.9	99.1	98.6	98.7	98.7	99.5	99.2	99.3	99.4	100.4	100.4	100.3	100.2	100.1	100.1	100.0	100.4	99.8	
10	329.2	3.44	4602	N/A	99.7	103.1	102.5	101.7	100.4	100.9	101.3	100.0	100.4	101.9	101.4	101.1	104.1	101.8	101.5	101.4	101.7	100.9	101.8	101.4	100.2	
11	328.3	3.38	4588	N/A	99.3	103.4	104.6	101.4	100.8	100.4	98.4	101.1	101.7	103.0	100.7	101.5	101.3	101.5	101.1	102.2	102.5	101.2	103.1	103.5	100.8	
12	353.4	3.38	4570	N/A	98.2	100.4	100.1	99.0	97.9	97.8	96.9	98.3	98.6	99.0	97.9	98.1	98.8	98.7	98.1	99.2	99.5	99.2	99.8	100.1	99.2	
13	328.6	3.42	4589	N/A	98.6	102.8	103.3	101.2	99.8	99.7	98.3	99.6	100.2	101.6	99.4	99.8	98.8	99.7	99.3	100.6	101.0	100.0	101.9	102.1	99.2	
14	337.6	3.41	4622	N/A	97.5	99.5	99.1	98.1	97.2	97.4	97.0	98.3	98.3	98.9	97.7	98.2	98.8	98.7	97.9	99.5	99.5	99.1	99.7	100.2	99.5	
15	369.5	3.41	4550	N/A	97.5	99.9	99.4	98.1	97.8	97.6	96.8	97.9	98.0	98.5	97.4	97.6	98.3	98.1	97.7	99.0	99.0	98.9	99.3	99.8	98.7	
16	345.4	3.59	4576	N/A	100.0	103.8	103.4	102.1	100.8	101.2	99.6	101.2	100.8	102.0	100.4	100.7	101.1	100.8	101.0	101.3	101.6	101.1	102.0	102.5	100.0	
17	339.6	3.47	4642	N/A	96.5	98.1	98.4	98.3	96.9	97.3	98.2	96.6	97.3	98.7	98.4	97.9	100.1	98.8	99.0	99.1	98.7	99.2	100.8	98.4	98.1	
18	367.2	3.38	4619	N/A	100.3	102.9	101.6	101.6	100.4	100.6	101.5	99.4	100.0	100.5	100.4	99.9	101.7	100.5	101.5	100.8	100.6	100.9	101.4	99.6	100.3	
19	343.4	3.41	4571	N/A	98.8	103.3	102.2	101.8	100.4	100.1	101.0	99.8	100.6	101.7	101.2	101.1	104.3	102.1	101.9	101.6	101.9	101.3	102.4	102.0	100.0	
20	370.7	3.42	4599	N/A	99.0	100.4	100.2	100.0	98.9	99.2	99.2	99.0	99.5	99.8	100.0	99.8	100.8	100.4	100.9	100.6	100.2	100.9	101.2	100.6	101.0	
21	345.7	3.42	4626	N/A	99.3	101.8	101.0	101.3	99.9	99.8	101.2	99.5	100.3	101.1	100.8	100.4	102.8	101.2	102.0	101.5	101.0	101.4	102.7	100.2	100.5	
22	357.3	3.38	4618	N/A	98.7	98.4	99.3	98.8	97.7	97.8	98.0	97.8	98.1	98.3	98.6	98.6	99.5	99.0	99.3	99.1	98.9	99.3	99.7	99.1	98.2	
23	350.3	3.35	4561	N/A	100.3	102.2	102.1	101.9	100.9	101.0	101.0	100.7	101.2	101.3	101.4	101.3	102.4	102.0	102.3	102.0	101.8	102.3	102.4	101.9	101.4	
24	337.3	3.36	4585	N/A	100.3	104.5	103.5	103.7	102.2	102.1	100.7	101.0	101.9	102.3	102.2	101.9	103.8	102.3	103.1	102.6	102.3	102.7	103.4	101.3	101.7	
25	358.3	3.34	4588	N/A	99.7	101.5	100.7	100.0	99.4	99.0	99.1	98.7	99.6	99.6	99.9	99.8	100.8	100.3	101.0	100.7	100.5	101.2	101.3	100.8	100.1	
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
Mean	347.1	3.41			99.3	102.0	101.6	100.7	100.0	100.1	99.7	99.9	100.5	100.9	100.4	100.2	101.5	101.1	101.1	101.0	101.0	101.0	101.3	101.3	100.6	
Median	345.7	3.41			99.6	102.2	101.4	101.2	100.2	100.1	99.3	99.9	100.4	101.1	100.4	100.0	101.4	101.2	101.3	101.0	101.2	101.4	101.2	100.3		
σ	13.3	0.05			1.08	1.83	1.70	1.59	1.72	1.74	1.71	1.69	1.69	1.63	1.72	1.43	1.73	1.62	1.79	1.20	1.32	1.30	1.17	1.52	1.47	
Min.	324.8	3.34			96.5	98.1	98.4	98.1	96.9	97.3	96.6	96.6	97.3	98.3	97.4	97.8	98.3	98.1	97.7	99.0	98.7	98.9	99.3	98.4	96.1	
Max.	370.7	3.59			100.8	105.8	104.9	103.7	103.1	103.4	103.1	103.2	103.9	103.6	103.5	103.1	104.3	104.2	103.9	102.7	103.3	103.3	103.4	104.5	103.6	

DATA SET 2: 85°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT) This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I _F]	1000 mA
Testing Initiation Date	November 16, 2011
Case Temperature [T _s]	85°C
Ambient Temperature [T _A]	85°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	#	Initial (0 hrs)				Chromaticity Shift (Δu^*v^*)																							
		CCx	CCy	Calc CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	11088			
1	0.3687	0.4421	4614	N/A	0.0004	0.0013	0.0005	0.0003	0.0005	0.0008	0.0007	0.0005	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0005	0.0006	0.0007	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002		
2	0.3711	0.4464	4575	N/A	0.0004	0.0010	0.0009	0.0010	0.0010	0.0012	0.0010	0.0011	0.0012	0.0012	0.0012	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0008	0.0005	0.0004	0.0004	0.0004	0.0004		
3	0.3686	0.4420	4617	N/A	0.0003	0.0004	0.0005	0.0003	0.0004	0.0007	0.0007	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0007	0.0007	0.0004	0.0005	0.0007	0.0004	0.0002	0.0002	0.0002	0.0002		
4	0.3720	0.4476	4559	N/A	0.0005	0.0005	0.0006	0.0003	0.0004	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0007	0.0005	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003		
5	0.3696	0.4441	4600	N/A	0.0004	0.0006	0.0007	0.0006	0.0005	0.0007	0.0006	0.0005	0.0005	0.0006	0.0005	0.0006	0.0005	0.0006	0.0007	0.0004	0.0004	0.0005	0.0002	0.0003	0.0003	0.0003	0.0004		
6	0.3728	0.4487	4544	N/A	0.0002	0.0006	0.0008	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006	0.0005	0.0006	0.0006	0.0006	0.0006	0.0004	0.0005	0.0004	0.0002	0.0003	0.0003	0.0004	0.0004		
7	0.3705	0.4435	4579	N/A	0.0002	0.0003	0.0004	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0005	0.0003	0.0004	0.0005	0.0007	0.0005	0.0005	0.0007	0.0010	0.0010	0.0013	0.0014		
8	0.3708	0.4477	4578	N/A	0.0006	0.0005	0.0005	0.0003	0.0005	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0004	0.0005	0.0007	0.0007	0.0007	0.0007	0.0007		
9	0.3703	0.4452	4616	N/A	0.0002	0.0002	0.0003	0.0003	0.0003	0.0001	0.0001	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0006	0.0006		
10	0.3708	0.4531	4602	N/A	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0005	0.0004	0.0004	0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.0008	0.0008	0.0010	0.0012	0.0013	0.0013	0.0013	0.0013		
11	0.3698	0.4415	4588	N/A	0.0005	0.0008	0.0009	0.0011	0.0011	0.0010	0.0015	0.0013	0.0011	0.0010	0.0010	0.0010	0.0011	0.0009	0.0004	0.0009	0.0007	0.0005	0.0003	0.0003	0.0003	0.0003	0.0003		
12	0.3716	0.4484	4570	N/A	0.0008	0.0008	0.0010	0.0010	0.0010	0.0009	0.0012	0.0011	0.0009	0.0008	0.0008	0.0010	0.0009	0.0007	0.0005	0.0008	0.0005	0.0004	0.0002	0.0003	0.0003	0.0003	0.0003		
13	0.3703	0.4456	4589	N/A	0.0002	0.0005	0.0007	0.0006	0.0008	0.0005	0.0007	0.0009	0.0004	0.0005	0.0002	0.0004	0.0003	0.0001	0.0006	0.0003	0.0003	0.0004	0.0006	0.0007	0.0007	0.0007	0.0007		
14	0.3680	0.4398	4622	N/A	0.0003	0.0007	0.0011	0.0010	0.0011	0.0008	0.0011	0.0010	0.0009	0.0011	0.0008	0.0010	0.0008	0.0008	0.0003	0.0007	0.0007	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002		
15	0.3728	0.4501	4550	N/A	0.0004	0.0011	0.0014	0.0015	0.0013	0.0011	0.0013	0.0015	0.0014	0.0012	0.0010	0.0010	0.0009	0.0008	0.0004	0.0009	0.0006	0.0004	0.0002	0.0000	0.0001	0.0001	0.0001		
16	0.3709	0.4459	4576	N/A	0.0003	0.0007	0.0009	0.0008	0.0009	0.0007	0.0012	0.0010	0.0007	0.0008	0.0005	0.0006	0.0007	0.0005	0.0005	0.0006	0.0004	0.0003	0.0001	0.0001	0.0002	0.0002	0.0002		
17	0.3683	0.4477	4642	N/A	0.0007	0.0012	0.0007	0.0006	0.0007	0.0006	0.0008	0.0008	0.0009	0.0007	0.0007	0.0007	0.0007	0.0006	0.0005	0.0007	0.0005	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003		
18	0.3688	0.4441	4619	N/A	0.0001	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0003	0.0002	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002		
19	0.3726	0.4454	4584	N/A	0.0003	0.0003	0.0004	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0003	0.0002	0.0004	0.0006	0.0005	0.0006	0.0005	0.0005		
20	0.3703	0.4485	4589	N/A	0.0001	0.0006	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0003	0.0004	0.0007	0.0006	0.0007	0.0007		
21	0.3688	0.4465	4626	N/A	0.0003	0.0005	0.0003	0.0003	0.0002	0.0003	0.0002	0.0004	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0003	0.0002	0.0003	0.0004	0.0005	0.0010	0.0007	0.0013	0.0016		
22	0.3698	0.4512	4618	N/A	0.0000	0.0009	0.0001	0.0001	0.0003	0.0001	0.0000	0.0003	0.0004	0.0002	0.0004	0.0003	0.0004	0.0006	0.0004	0.0005	0.0007	0.0009	0.0010	0.0009	0.0016	0.0016	0.0016		
23	0.3720	0.4483	4561	N/A	0.0001	0.0007	0.0003	0.0003	0.0003	0.0003	0.0004	0.0003	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0001	0.0002	0.0004	0.0006	0.0003	0.0008	0.0008		
24	0.3705	0.4458	4585	N/A	0.0002	0.0005	0.0001	0.0001	0.0002	0.0002	0.0002	0.0005	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005		
25	0.3703	0.4452	4588	N/A	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0003	0.0004	0.0005	0.0006	0.0005	0.0011	0.0011		
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25		
Mean					0.0003	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0005	0.0004	0.0005	0.0004	0.0005	0.0006		
Median					0.0003	0.0006	0.0005	0.0003	0.0004	0.0005	0.0005	0.0005	0.0005	0.0004	0.0005	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0004	0.0004	0.0003	0.0003	0.0007	0.0007		
Min					0.0001	0.0002	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	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		
Max					0.0008	0.0013	0.0014	0.0015	0.0013	0.0012	0.0015	0.0015	0.0012	0.0012	0.0012	0.0012	0.0011	0.0011	0.0010	0.0010	0.0010	0.0011	0.0010	0.0012	0.0013	0.0016	0.0016		

DATA SET 4: 105°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1000 mA
Testing Initiation Date	November 22, 2011
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V_F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	365.1	3.40	4490	N/A	100.3	100.3	100.5	98.4	98.7	98.1	99.0	97.7	98.5	99.2	98.5	98.3
2	334.8	3.44	4615	N/A	99.6	100.9	100.1	99.6	99.4	99.2	99.0	98.8	98.7	98.4	98.3	98.6
3	354.4	3.43	4480	N/A	100.1	100.8	101.0	99.1	98.9	98.9	99.4	98.1	98.4	99.4	98.8	98.7
4	348.8	3.41	4510	N/A	99.7	100.8	99.7	98.6	98.3	98.1	98.1	97.9	98.4	98.1	97.8	97.7
5	341.3	3.42	4569	N/A	99.9	101.0	101.2	100.2	99.6	99.5	100.2	98.1	98.6	99.5	98.9	99.0
6	352.5	3.44	4477	N/A	99.3	101.1	100.1	98.9	98.8	98.6	98.7	98.4	98.9	98.7	98.5	98.2
7	355.9	3.44	4436	N/A	100.2	101.0	101.0	100.1	100.0	99.7	99.9	99.6	99.8	99.7	99.5	99.4
8	348.3	3.42	4605	N/A	99.8	101.2	100.9	100.5	99.7	99.9	100.2	98.3	98.6	99.2	98.9	98.7
9	356.4	3.39	4587	N/A	99.8	101.5	100.6	99.5	99.3	99.2	99.4	99.1	99.6	99.4	99.2	99.1
10	358.7	3.43	4490	N/A	99.7	101.4	101.3	101.2	100.2	100.2	100.8	98.8	99.1	99.4	99.1	98.9
11	346.7	3.41	4614	N/A	99.6	101.2	101.5	100.6	99.7	99.9	100.1	99.3	100.3	99.5	100.2	100.3
12	358.6	3.45	4592	N/A	99.6	100.2	99.5	99.1	98.6	98.5	98.2	97.4	98.0	97.7	97.9	97.6
13	333.0	3.40	4624	N/A	99.4	100.6	100.5	99.4	98.6	98.8	98.8	98.8	98.7	98.3	99.2	99.5
14	339.7	3.38	4617	N/A	99.6	101.3	100.6	100.2	99.2	99.4	99.3	98.1	98.8	98.6	98.6	99.2
15	354.0	3.34	4606	N/A	99.8	99.8	100.1	99.4	98.1	98.7	98.2	98.0	98.7	98.3	98.8	98.6
16	355.3	3.34	4598	N/A	100.3	99.6	99.9	98.8	97.8	98.0	97.0	97.2	97.7	97.2	97.1	96.8
17	359.7	3.38	4485	N/A	100.0	101.0	101.0	100.9	99.4	100.4	99.9	98.4	97.9	99.0	98.5	99.3
18	345.8	3.37	4532	N/A	99.3	100.2	99.8	99.6	98.3	98.4	98.3	98.7	98.4	97.4	98.3	98.1
19	339.7	3.40	4610	N/A	99.9	100.7	100.7	100.3	99.2	99.3	99.2	98.9	99.3	98.4	99.3	99.3
20	344.2	3.36	4586	N/A	99.9	101.1	100.0	100.8	99.7	99.3	100.3	97.4	98.8	97.3	98.6	98.7
21	367.5	3.41	4596	N/A	99.9	99.9	99.5	99.6	98.8	98.6	98.5	98.8	98.7	97.9	98.5	98.6
22	363.3	3.42	4567	N/A	100.3	100.6	100.2	100.3	99.3	99.3	99.0	99.5	99.0	98.0	99.0	98.9
23	340.7	3.35	4495	N/A	100.4	101.7	101.2	101.4	100.7	100.4	101.1	98.4	99.5	98.4	99.5	99.5
24	359.7	3.34	4547	N/A	99.4	100.7	99.9	99.7	98.6	98.6	98.2	98.8	98.3	97.6	98.3	97.8
25	365.0	3.38	4564	N/A	100.8	101.8	101.3	101.8	100.6	100.7	100.2	98.2	99.1	98.6	99.3	99.1
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean	351.6	3.40			99.9	100.8	100.5	99.9	99.2	99.2	99.2	98.4	98.8	98.5	98.7	98.7
Median	354.0	3.40			99.8	100.9	100.5	99.7	99.2	99.2	99.2	98.4	98.7	98.4	98.8	98.7
σ	9.8	0.03			0.37	0.68	0.61	0.89	0.75	0.77	0.97	0.64	0.59	0.76	0.63	0.74
Min.	333.0	3.34			99.3	99.6	99.5	98.4	97.8	98.0	97.0	97.2	97.7	97.2	97.1	96.8
Max.	367.5	3.45			100.8	101.8	101.5	101.8	100.7	100.7	101.1	99.6	100.3	99.7	100.2	100.3

DATA SET 4: 105°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1000 mA
Testing Initiation Date	November 22, 2011
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Chromaticity Shift ($\Delta u'v'$)											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.3762	0.4539	4490	N/A	0.0000	0.0005	0.0006	0.0006	0.0005	0.0004	0.0003	0.0006	0.0006	0.0005	0.0003	0.0003
2	0.3680	0.4373	4615	N/A	0.0004	0.0013	0.0015	0.0013	0.0014	0.0013	0.0016	0.0013	0.0014	0.0013	0.0012	0.0011
3	0.3768	0.4550	4480	N/A	0.0001	0.0009	0.0009	0.0009	0.0008	0.0007	0.0008	0.0008	0.0010	0.0007	0.0005	0.0005
4	0.3745	0.4495	4510	N/A	0.0004	0.0007	0.0009	0.0006	0.0006	0.0005	0.0006	0.0005	0.0005	0.0004	0.0004	0.0003
5	0.3707	0.4419	4569	N/A	0.0003	0.0010	0.0010	0.0008	0.0007	0.0007	0.0006	0.0010	0.0009	0.0008	0.0006	0.0004
6	0.3767	0.4532	4477	N/A	0.0009	0.0013	0.0014	0.0011	0.0010	0.0010	0.0011	0.0011	0.0009	0.0009	0.0008	0.0007
7	0.3790	0.4555	4436	N/A	0.0003	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006	0.0005	0.0005
8	0.3683	0.4363	4605	N/A	0.0000	0.0006	0.0006	0.0005	0.0003	0.0002	0.0003	0.0004	0.0006	0.0004	0.0003	0.0002
9	0.3699	0.4418	4587	N/A	0.0002	0.0006	0.0007	0.0005	0.0006	0.0005	0.0006	0.0007	0.0006	0.0006	0.0005	0.0005
10	0.3749	0.4461	4490	N/A	0.0005	0.0010	0.0011	0.0009	0.0010	0.0009	0.0009	0.0012	0.0012	0.0011	0.0009	0.0009
11	0.3686	0.4416	4614	N/A	0.0002	0.0003	0.0003	0.0005	0.0002	0.0004	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002
12	0.3693	0.4398	4592	N/A	0.0005	0.0012	0.0013	0.0014	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010
13	0.3688	0.4458	4624	N/A	0.0002	0.0004	0.0005	0.0005	0.0003	0.0004	0.0004	0.0004	0.0002	0.0004	0.0004	0.0003
14	0.3693	0.4469	4617	N/A	0.0001	0.0003	0.0003	0.0008	0.0005	0.0004	0.0005	0.0003	0.0005	0.0005	0.0007	0.0008
15	0.3689	0.4411	4606	N/A	0.0001	0.0003	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002
16	0.3690	0.4389	4598	N/A	0.0003	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0004	0.0005
17	0.3761	0.4520	4485	N/A	0.0003	0.0007	0.0007	0.0009	0.0006	0.0008	0.0008	0.0009	0.0006	0.0009	0.0007	0.0006
18	0.3748	0.4578	4532	N/A	0.0001	0.0003	0.0003	0.0002	0.0001	0.0001	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
19	0.3700	0.4498	4610	N/A	0.0001	0.0004	0.0002	0.0002	0.0001	0.0002	0.0004	0.0005	0.0002	0.0002	0.0002	0.0002
20	0.3705	0.4461	4586	N/A	0.0001	0.0005	0.0004	0.0004	0.0002	0.0003	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003
21	0.3698	0.4440	4596	N/A	0.0002	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004	0.0002
22	0.3720	0.4499	4567	N/A	0.0001	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0002	0.0004	0.0003	0.0004
23	0.3755	0.4516	4495	N/A	0.0001	0.0004	0.0006	0.0007	0.0004	0.0005	0.0007	0.0007	0.0005	0.0005	0.0004	0.0004
24	0.3724	0.4469	4547	N/A	0.0002	0.0005	0.0004	0.0004	0.0002	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0002
25	0.3714	0.4450	4564	N/A	0.0001	0.0006	0.0005	0.0004	0.0003	0.0004	0.0005	0.0006	0.0004	0.0002	0.0002	0.0002
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean					0.0002	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004
Median					0.0002	0.0006	0.0006	0.0005	0.0004	0.0004	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004
σ					0.0002	0.0003	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Min.					0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002
Max.					0.0009	0.0013	0.0015	0.0014	0.0014	0.0013	0.0016	0.0013	0.0014	0.0013	0.0012	0.0011

DATA SET 4+: 105°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I _F]	1000 mA
Testing Initiation Date	November 22, 2011
Case Temperature [T _s]	105°C
Ambient Temperature [T _A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)																					
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088
1	365.1	3.40	4490	N/A	100.3	100.3	100.5	98.4	98.7	98.1	99.0	97.7	98.5	99.2	98.5	98.3	99.7	100.4	98.7	99.0	99.2	100.8	100.0	99.7	99.1	99.3
2	334.8	3.44	4615	N/A	99.6	100.9	100.1	99.6	99.4	99.2	99.0	98.8	98.7	98.4	98.3	98.6	99.5	99.9	98.9	98.4	99.5	99.3	100.3	98.7	99.4	99.1
3	354.4	3.43	4480	N/A	100.1	100.8	101.0	99.1	98.9	98.9	99.4	98.1	98.4	99.4	98.8	98.8	99.9	100.6	98.8	98.7	99.4	99.0	100.5	100.0	99.3	99.6
4	348.8	3.41	4510	N/A	99.7	100.8	99.7	98.6	98.3	98.1	98.1	97.9	98.4	98.1	97.8	97.7	98.9	99.0	98.5	98.1	99.0	98.3	99.1	97.8	98.3	97.8
5	341.3	3.42	4569	N/A	99.9	101.0	101.2	100.2	99.6	99.5	100.2	98.1	98.6	99.5	98.9	99.0	100.0	100.5	99.3	98.4	99.3	100.7	100.2	99.4	99.1	98.9
6	352.5	3.44	4477	N/A	99.3	101.1	100.1	98.9	98.8	98.6	98.7	98.4	98.9	98.7	98.5	98.2	99.6	99.7	98.9	98.5	99.2	99.4	100.1	98.9	99.5	99.1
7	355.9	3.44	4436	N/A	100.2	101.0	101.0	100.1	100.0	99.7	99.9	99.6	99.8	99.7	99.5	99.4	100.5	100.8	100.2	99.5	100.4	100.6	100.8	99.9	100.3	99.9
8	348.3	3.42	4605	N/A	99.8	101.2	100.9	100.5	99.7	99.9	100.2	98.3	98.6	99.2	98.9	98.7	99.6	100.1	99.7	98.7	98.9	100.4	100.1	99.2	99.2	98.6
9	356.4	3.39	4587	N/A	99.8	101.5	100.6	99.5	99.3	99.2	99.4	99.1	99.6	99.4	99.2	99.1	100.2	100.3	99.9	99.0	99.8	99.9	100.8	99.3	99.7	99.1
10	358.7	3.43	4490	N/A	99.7	101.4	101.3	101.2	100.2	100.2	100.8	98.8	99.1	99.6	99.1	98.9	99.9	100.3	100.7	99.2	99.6	101.1	100.7	99.9	99.8	99.7
11	346.7	3.41	4614	N/A	99.6	101.2	101.5	100.6	99.7	99.9	100.1	99.3	100.3	99.5	100.2	100.3	100.2	100.5	99.7	100.6	98.7	100.5	98.5	100.3	98.8	99.1
12	333.0	3.40	4624	N/A	99.4	100.6	100.5	99.4	98.6	98.8	98.8	98.8	98.7	98.3	99.2	99.5	99.0	99.2	100.5	99.7	98.8	98.5	99.0	98.6	98.1	98.2
13	343.8	3.42	4617	N/A	99.6	101.3	100.6	100.2	99.2	99.4	99.3	98.1	98.8	99.6	98.6	99.2	98.5	98.5	98.2	99.5	99.3	99.3	98.1	98.5	98.2	98.0
14	354.0	3.34	4606	N/A	99.8	99.8	100.1	99.4	98.1	98.7	98.2	98.0	98.7	98.8	98.8	98.6	99.4	99.6	99.0	99.0	98.7	99.9	99.1	99.5	99.3	99.2
15	355.3	3.34	4598	N/A	100.3	99.6	99.9	98.8	97.8	98.0	97.0	97.2	97.7	97.2	97.1	96.8	98.3	98.4	97.9	98.5	98.4	98.2	98.1	97.8	97.6	97.6
16	359.7	3.38	4485	N/A	100.0	101.0	101.0	100.9	99.4	100.4	99.9	98.4	97.9	99.0	98.5	99.3	99.4	99.4	99.0	99.7	99.4	100.0	98.8	99.0	98.8	98.9
17	345.8	3.37	4532	N/A	99.3	100.2	99.8	99.6	98.3	98.4	98.3	98.7	98.4	97.4	98.3	98.1	98.3	99.1	99.4	99.1	99.6	98.8	98.6	98.7	98.8	98.6
18	339.7	3.40	4610	N/A	99.9	100.7	100.7	100.3	99.2	99.3	99.2	98.9	99.8	98.4	99.3	99.3	100.5	100.8	99.6	100.3	100.8	100.1	99.9	99.9	99.9	99.7
19	344.2	3.36	4586	N/A	99.9	101.1	100.0	100.8	99.7	99.3	100.3	97.4	98.8	97.3	98.6	98.7	99.7	98.7	98.3	100.0	100.9	99.0	98.3	98.4	98.3	98.2
20	367.5	3.41	4596	N/A	99.9	99.9	99.5	99.6	98.8	98.6	98.5	98.8	98.7	97.9	98.5	98.6	99.8	99.3	99.3	99.0	99.5	100.0	99.5	99.0	99.1	99.2
21	363.3	3.42	4567	N/A	100.3	100.6	100.2	100.3	99.3	99.3	99.0	99.5	99.0	98.0	99.0	98.9	100.1	99.4	99.0	99.9	100.3	99.8	99.4	99.5	99.7	99.0
22	340.7	3.35	4495	N/A	100.4	101.7	101.2	101.4	100.7	100.4	101.1	98.4	99.5	98.4	99.5	99.5	100.6	100.5	99.1	101.0	101.0	99.8	99.2	99.2	99.3	98.9
23	359.7	3.34	4547	N/A	99.4	100.7	99.9	99.7	98.6	98.6	98.2	98.8	98.3	97.6	98.3	97.8	99.5	99.0	98.9	99.2	99.9	99.3	98.8	98.9	98.9	98.8
24	365.0	3.38	4564	N/A	100.8	101.8	101.3	101.8	100.6	100.7	100.2	98.2	99.1	98.6	98.3	98.1	100.3	100.4	99.5	100.9	101.3	100.0	99.2	99.2	99.5	99.0
n	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Mean	351.3	3.40			99.9	100.8	100.5	100.0	99.2	99.2	99.3	98.5	98.8	98.6	98.8	98.8	99.7	99.8	99.2	99.4	99.6	99.7	99.4	99.1	99.1	98.9
Median	353.3	3.40			99.8	100.9	100.6	99.9	99.3	99.3	99.2	98.4	98.7	98.5	98.8	98.8	99.7	99.8	99.0	99.2	99.5	99.8	99.2	99.2	99.2	99.0
σ	9.9	0.03			0.37	0.58	0.59	0.89	0.75	0.78	0.97	0.61	0.58	0.76	0.62	0.72	0.61	0.69	0.69	0.81	0.84	0.79	0.87	0.65	0.65	0.59
Min	333.0	3.34			99.3	99.6	99.5	98.4	97.8	98.0	97.0	97.2	97.7	97.2	97.1	96.8	98.3	98.4	97.9	98.1	98.3	98.2	98.1	97.8	97.6	97.6
Max	367.5	3.44			100.8	101.8	101.5	101.8	100.7	100.7	101.1	99.6	100.3	99.7	100.2	100.3	100.6	100.8	100.7	101.0	101.3	101.1	100.8	100.3	100.3	99.9

DATA SET 4+: 105°C; 1000 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1000 mA
Testing Initiation Date	November 22, 2011
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Chromaticity Shift ($\Delta u/v$)																							
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088		
1	0.3762	0.4539	4490	N/A	0.0000	0.0005	0.0006	0.0006	0.0005	0.0004	0.0003	0.0006	0.0006	0.0005	0.0003	0.0003	0.0004	0.0003	0.0002	0.0002	0.0002	0.0004	0.0002	0.0005	0.0004	0.0005		
2	0.3680	0.4373	4615	N/A	0.0004	0.0013	0.0015	0.0013	0.0014	0.0013	0.0016	0.0013	0.0014	0.0013	0.0012	0.0011	0.0012	0.0011	0.0007	0.0008	0.0009	0.0008	0.0010	0.0005	0.0003	0.0003		
3	0.3768	0.4550	4480	N/A	0.0001	0.0009	0.0009	0.0009	0.0008	0.0007	0.0008	0.0008	0.0010	0.0007	0.0005	0.0005	0.0006	0.0006	0.0004	0.0002	0.0004	0.0003	0.0004	0.0002	0.0002	0.0002		
4	0.3748	0.4495	4510	N/A	0.0004	0.0007	0.0009	0.0006	0.0006	0.0005	0.0006	0.0005	0.0005	0.0004	0.0004	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0004	0.0003	0.0006	0.0005		
5	0.3707	0.4419	4569	N/A	0.0003	0.0010	0.0010	0.0008	0.0007	0.0007	0.0006	0.0010	0.0009	0.0008	0.0008	0.0004	0.0007	0.0006	0.0004	0.0002	0.0004	0.0002	0.0004	0.0002	0.0002	0.0001		
6	0.3767	0.4532	4477	N/A	0.0009	0.0013	0.0014	0.0011	0.0010	0.0010	0.0011	0.0011	0.0009	0.0009	0.0008	0.0007	0.0009	0.0008	0.0006	0.0003	0.0006	0.0004	0.0007	0.0003	0.0002	0.0002		
7	0.3790	0.4555	4436	N/A	0.0003	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006	0.0005	0.0005	0.0007	0.0006	0.0006	0.0003	0.0003	0.0004	0.0003	0.0004	0.0002	0.0002		
8	0.3683	0.4363	4605	N/A	0.0000	0.0006	0.0006	0.0005	0.0003	0.0002	0.0003	0.0004	0.0006	0.0004	0.0003	0.0002	0.0003	0.0003	0.0002	0.0003	0.0002	0.0004	0.0002	0.0006	0.0006	0.0005		
9	0.3699	0.4418	4587	N/A	0.0002	0.0006	0.0007	0.0005	0.0006	0.0005	0.0006	0.0007	0.0006	0.0006	0.0005	0.0005	0.0006	0.0006	0.0006	0.0004	0.0007	0.0002	0.0001	0.0003	0.0002	0.0002		
10	0.3749	0.4461	4490	N/A	0.0005	0.0010	0.0011	0.0009	0.0010	0.0009	0.0009	0.0012	0.0012	0.0012	0.0011	0.0009	0.0009	0.0010	0.0010	0.0010	0.0003	0.0007	0.0006	0.0005	0.0006	0.0004		
11	0.3686	0.4416	4614	N/A	0.0002	0.0003	0.0003	0.0005	0.0002	0.0002	0.0004	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0003	0.0003	0.0003	0.0004	0.0005	0.0005	0.0006	0.0005		
12	0.3688	0.4458	4624	N/A	0.0002	0.0004	0.0005	0.0005	0.0003	0.0003	0.0004	0.0004	0.0004	0.0002	0.0004	0.0004	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0007	0.0006	0.0006	0.0005		
13	0.3693	0.4469	4617	N/A	0.0001	0.0003	0.0003	0.0003	0.0003	0.0005	0.0004	0.0005	0.0003	0.0005	0.0005	0.0005	0.0007	0.0008	0.0006	0.0008	0.0011	0.0008	0.0011	0.0010	0.0012	0.0011		
14	0.3689	0.4411	4606	N/A	0.0001	0.0003	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0003	0.0002	0.0005	0.0003	0.0005	0.0004	0.0006	0.0007	0.0008		
15	0.3690	0.4389	4598	N/A	0.0003	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0006	0.0008	0.0004	0.0009	0.0008	0.0010	0.0009	0.0010		
16	0.3761	0.4520	4485	N/A	0.0003	0.0007	0.0007	0.0009	0.0006	0.0008	0.0008	0.0009	0.0006	0.0009	0.0007	0.0006	0.0008	0.0008	0.0004	0.0006	0.0004	0.0004	0.0003	0.0004	0.0003	0.0006		
17	0.3748	0.4578	4532	N/A	0.0001	0.0003	0.0003	0.0002	0.0001	0.0001	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0004	0.0003	0.0003	0.0004		
18	0.3700	0.4496	4610	N/A	0.0001	0.0004	0.0002	0.0002	0.0001	0.0002	0.0004	0.0005	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0005	0.0006	0.0006	0.0004	0.0005		
19	0.3705	0.4461	4586	N/A	0.0001	0.0005	0.0004	0.0004	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0004	0.0005	0.0005	0.0004	0.0005	0.0006	0.0006	0.0006	0.0007	0.0006		
20	0.3698	0.4440	4596	N/A	0.0002	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004	0.0003	0.0004	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.0004	0.0003	0.0005		
21	0.3720	0.4499	4567	N/A	0.0001	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0004	0.0003	0.0003	0.0003	0.0005	0.0005	0.0006	0.0008	0.0009	0.0009	0.0010	0.0009	0.0009		
22	0.3755	0.4516	4495	N/A	0.0001	0.0004	0.0006	0.0007	0.0004	0.0005	0.0007	0.0007	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004		
23	0.3724	0.4469	4547	N/A	0.0002	0.0005	0.0004	0.0004	0.0002	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0005	0.0005	0.0005	0.0004		
24	0.3714	0.4450	4564	N/A	0.0001	0.0006	0.0005	0.0004	0.0003	0.0004	0.0005	0.0005	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004		
n	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Mean					0.0002	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005	0.0005	0.0004	0.0004	0.0005	0.0005	0.0005	0.0005	0.0006		
Median					0.0002	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005		
σ					0.0001	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	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					0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001		
Max					0.0009	0.0013	0.0015	0.0013	0.0014	0.0013	0.0016	0.0013	0.0014	0.0013	0.0012	0.0011	0.0012	0.0011	0.0011	0.0008	0.0011	0.0010	0.0012	0.0011	0.0012	0.0016		

DATA SET 5: 105°C; 1500 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1500 mA
Testing Initiation Date	November 30, 2011
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V_F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	471.6	3.58	4605	N/A	102.2	101.0	101.3	100.8	100.8	100.1	100.8	100.1	100.7	99.8	99.7	99.5
2	470.4	3.54	4451	N/A	99.0	100.7	101.0	100.2	99.3	99.4	99.6	98.8	99.5	99.1	99.3	99.2
3	446.3	3.56	4540	N/A	101.0	102.0	101.7	101.0	99.6	100.2	100.7	99.3	99.9	100.1	100.1	99.5
4	465.5	3.60	4608	N/A	100.2	99.3	99.1	98.4	97.5	97.8	97.8	97.2	97.7	97.6	97.7	97.5
5	467.2	3.63	4581	N/A	99.9	100.3	99.7	99.3	98.2	98.6	98.8	98.0	98.5	98.3	98.6	98.1
6	473.5	3.60	4453	N/A	100.9	100.5	100.3	99.5	98.5	98.8	98.9	98.1	98.6	98.5	98.7	98.5
7	499.3	3.65	4540	N/A	99.2	101.2	101.3	100.9	99.5	100.3	100.3	99.0	98.6	99.4	99.6	98.9
8	417.5	3.62	4506	N/A	99.5	98.8	99.0	99.3	97.6	97.6	98.4	96.6	97.6	98.0	98.0	96.3
9	449.8	3.66	4555	N/A	99.5	98.8	98.5	98.2	97.4	97.2	97.2	97.1	97.6	97.6	97.1	96.8
10	413.5	3.57	4529	N/A	99.1	101.1	99.8	99.8	98.4	98.4	99.2	97.2	98.3	98.7	98.6	97.1
11	488.4	3.64	4497	N/A	99.4	99.8	99.0	98.7	97.8	97.6	97.4	97.4	97.5	98.1	97.6	97.2
12	440.9	3.58	4449	N/A	100.1	101.6	101.2	100.9	99.6	99.7	100.2	97.8	98.7	99.0	98.8	97.6
13	463.0	3.59	4601	N/A	99.9	99.9	99.9	98.8	97.8	97.9	97.8	97.6	98.3	98.0	97.3	97.5
14	401.3	3.63	4530	N/A	99.4	100.3	99.8	98.9	98.1	98.1	98.6	97.6	97.2	97.9	97.6	98.4
15	480.8	3.64	4517	N/A	99.9	99.8	99.8	98.7	97.9	97.9	97.7	97.3	98.1	97.9	97.0	97.4
16	449.8	3.63	4515	N/A	100.7	101.8	101.2	100.7	99.2	99.8	100.6	98.5	99.0	99.5	98.5	99.4
17	469.1	3.53	4606	N/A	100.3	100.1	99.8	99.0	97.9	97.7	97.5	97.1	98.1	97.7	97.2	97.6
18	479.9	3.53	4463	N/A	100.5	99.2	99.4	98.6	97.6	97.7	97.8	97.5	98.6	98.2	97.7	97.6
19	428.8	3.59	4613	N/A	99.8	101.5	101.6	101.2	99.8	100.1	100.1	99.0	99.5	99.7	98.9	99.8
20	472.7	3.50	4437	N/A	101.1	101.8	100.9	99.7	100.1	99.1	98.0	99.8	98.8	98.1	98.0	97.1
21	518.9	3.51	4443	N/A	99.5	99.4	99.0	98.1	98.3	97.9	97.2	97.3	97.1	96.4	96.8	96.2
22	490.8	3.57	4515	N/A	99.3	99.3	98.6	97.8	97.9	97.7	97.1	97.7	97.4	96.5	96.5	95.3
23	467.4	3.57	4576	N/A	99.8	100.2	99.5	98.3	98.2	98.1	97.4	98.0	97.6	96.9	97.0	95.7
24	488.9	3.48	4509	N/A	99.3	99.4	98.8	98.0	98.0	97.8	97.2	97.5	97.1	96.3	96.7	95.9
25	445.3	3.52	4569	N/A	101.4	101.2	101.4	100.8	100.2	100.7	98.5	99.7	97.9	98.3	97.6	96.7
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean	462.4	3.58			100.0	100.4	100.1	99.4	98.6	98.6	98.6	98.0	98.3	98.2	98.0	97.6
Median	467.4	3.58			99.9	100.3	99.8	99.3	98.2	98.1	98.4	97.7	98.3	98.1	97.7	97.5
σ	27.7	0.05			0.81	0.89	1.04	1.10	0.98	1.07	1.25	0.97	0.91	1.04	1.01	1.28
Min.	401.3	3.48			99.0	98.8	98.5	97.8	97.4	97.2	97.1	96.6	97.1	96.3	96.5	95.3
Max.	518.9	3.66			102.2	102.0	101.7	101.2	100.8	100.7	100.8	100.1	100.7	100.1	100.1	99.8

DATA SET 5: 105°C; 1500 mA

LED Package Series	XLamp XT-E Blue-Shifted Yellow (BSY) LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Drive Current [I_F]	1500 mA
Testing Initiation Date	November 30, 2011
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Note: XLamp XT-E BSY LEDs are not within an ANSI chromaticity bin. These LEDs are designed to be mixed together with single-color LEDs to create white light within a defined ANSI chromaticity bin.

Lamp #	Initial (0 hrs)				Chromaticity Shift ($\Delta u'v'$)											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.3684	0.4370	4605	N/A	0.0001	0.0004	0.0003	0.0004	0.0003	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
2	0.3777	0.4523	4451	N/A	0.0004	0.0006	0.0004	0.0005	0.0003	0.0004	0.0003	0.0003	0.0004	0.0004	0.0003	0.0004
3	0.3718	0.4413	4540	N/A	0.0003	0.0008	0.0008	0.0008	0.0006	0.0006	0.0005	0.0006	0.0007	0.0005	0.0003	0.0005
4	0.3681	0.4362	4608	N/A	0.0005	0.0005	0.0005	0.0004	0.0002	0.0002	0.0003	0.0001	0.0003	0.0003	0.0003	0.0002
5	0.3698	0.4397	4581	N/A	0.0004	0.0004	0.0005	0.0004	0.0003	0.0003	0.0004	0.0002	0.0004	0.0003	0.0002	0.0003
6	0.3778	0.4531	4453	N/A	0.0005	0.0007	0.0006	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007	0.0006	0.0005	0.0005
7	0.3727	0.4468	4540	N/A	0.0005	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0004	0.0005
8	0.3756	0.4553	4506	N/A	0.0004	0.0009	0.0006	0.0006	0.0005	0.0004	0.0005	0.0005	0.0008	0.0004	0.0005	0.0004
9	0.3725	0.4498	4555	N/A	0.0001	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0003
10	0.3747	0.4559	4529	N/A	0.0002	0.0006	0.0004	0.0003	0.0003	0.0002	0.0003	0.0003	0.0006	0.0002	0.0002	0.0002
11	0.3759	0.4544	4497	N/A	0.0003	0.0008	0.0005	0.0004	0.0003	0.0003	0.0003	0.0002	0.0007	0.0002	0.0003	0.0003
12	0.3784	0.4556	4449	N/A	0.0002	0.0001	0.0003	0.0004	0.0004	0.0005	0.0006	0.0004	0.0004	0.0006	0.0006	0.0006
13	0.3700	0.4472	4601	N/A	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003	0.0002	0.0004	0.0003	0.0006	0.0005
14	0.3743	0.4539	4530	N/A	0.0001	0.0005	0.0005	0.0006	0.0007	0.0008	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013
15	0.3747	0.4529	4517	N/A	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0006	0.0005
16	0.3750	0.4537	4515	N/A	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0004	0.0002	0.0003	0.0004	0.0004	0.0004
17	0.3690	0.4419	4606	N/A	0.0001	0.0002	0.0003	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0007	0.0008	0.0008
18	0.3777	0.4555	4463	N/A	0.0001	0.0004	0.0001	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0005	0.0003
19	0.3680	0.4369	4613	N/A	0.0000	0.0003	0.0002	0.0003	0.0004	0.0004	0.0006	0.0004	0.0004	0.0006	0.0006	0.0007
20	0.3789	0.4552	4437	N/A	0.0001	0.0001	0.0001	0.0003	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0008	0.0009
21	0.3784	0.4539	4443	N/A	0.0002	0.0001	0.0001	0.0001	0.0002	0.0003	0.0004	0.0006	0.0007	0.0007	0.0007	0.0008
22	0.3742	0.4485	4515	N/A	0.0004	0.0004	0.0004	0.0005	0.0006	0.0007	0.0007	0.0009	0.0009	0.0010	0.0011	0.0012
23	0.3703	0.4413	4576	N/A	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0008	0.0009	0.0010	0.0011	0.0011	0.0014
24	0.3743	0.4476	4509	N/A	0.0002	0.0003	0.0004	0.0003	0.0002	0.0003	0.0003	0.0005	0.0004	0.0005	0.0005	0.0006
25	0.3710	0.4438	4569	N/A	0.0002	0.0005	0.0004	0.0005	0.0007	0.0008	0.0008	0.0009	0.0008	0.0010	0.0009	0.0009
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean					0.0002	0.0004	0.0003	0.0004	0.0004	0.0004	0.0005	0.0004	0.0005	0.0005	0.0006	0.0006
Median					0.0002	0.0004	0.0004	0.0004	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005
σ					0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003
Min.					0.0000	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
Max.					0.0005	0.0009	0.0008	0.0008	0.0007	0.0008	0.0008	0.0009	0.0010	0.0011	0.0012	0.0014